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CONTROL OF COMMUNICABLE DISEASES IN SCHOOLS

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NEW YORK

The control of communicable (contagious) diseases in schools is a subject that might be discussed from more than one angle. One approach would involve listing quite a number of the important communicable diseases to which school children are exposed and discussing each with respect to the present status of knowledge and to the consensus among health authorities as to the best procedures for its prevention, treatment and control. This would be tedious, time consuming and wearying. Besides, all that I could say is already conveniently available in reference books, in manuals for health officers and in rules and regulations of health departments. A particularly useful handbook of this character is the Report of the Committee on Communicable Disease Control, under section II of Public Health Service and Administration of the White House Conference on Child Health and Protection, published by the Century Company in 1931. It is a brief, clear-cut review covering present knowledge regarding the communicable diseases, and it reflects the prevailing opinion among public health authorities as to appropriate measures for combating each. I deem it inadvisable, therefore, to pursue this line of approach and prefer to present a discussion directed to placing administrative responsibility for the control of communicable diseases.

Sweeping and categorical statements regarding this responsibility for the country as a whole are not warranted. An extremely wide variety of communities is found. On the one hand there are great cities in which there is a concentration of population and wealth and in which conditions are extremely complex. On the other hand there is the rural community with its small population, which is widely scattered and has very limited economic resources. Also there is the school or college isolated to a large extent from community governmental services. Certain industrial organizations may be similarly situated. They find it necessary to organize and operate their own health and medical services and to assume almost complete responsibility for the health protection of their community.

Again, in communities that may be similar as to wealth, population and other features there may exist a great variety in ideas, customs and historical background, and tradition may influence practice. One finds in the New England states that the rather small township has become the unit of local government, whereas elsewhere the much larger county is the accepted unit of local government. Moreover, in certain states and cities the public schools were developed early and many of them had able and aggressive leadership, whereas the public health service in certain of these areas was backward and inadequate and had part time, untrained and indifferent direction. The school authorities were prompt to recognize the necessity for health protection of the students. They sometimes employed physicians and nurses—some on a full time basis, others on part time—to supply the schools with health services.

In communities in which for varying reasons a particular type of procedure has grown up, it is difficult to bring about logical changes designed to procure reasonably uniform practice. Fortunately, the school authorities in most states and cities have recognized that the community should have only one system of schools and only one health service. Moreover, they have been wise enough to advocate a health service designed to give protection against disease to residents of all ages and not to burden the taxpayers unduly with a second health service designed to serve the school age group, a service which at times has become competitive rather than complementary to the general health service. They have liberally supported the general health department to the extent of supplying money and personnel toward strengthening it. They realize that any soundly conceived and administered health service will concentrate activities to a large degree on persons of preschool and school age, because the largest returns in comparison with expenditures are to be obtained by this course. The schools then rarely have reason to fear lest the health department will neglect the health needs of the schools. There should exist, of course, a very intimate working relationship between the director of education and the director of health and among their associates. Where there has been able and cooperative leadership in both the educational and the health community services the results generally have been very satisfactory, and occasion has seldom arisen for having two health services in a single community.

Since, as already explained, there is such a wide variety in communities, the task of placing responsibility for the control of communicable diseases in schools will be simplified if consideration is limited to communities averaging high as to resources and citizenship and to civic jurisdictions—county or city—having a population ranging from 50,000 to 500,000. Such communities usually have a board of supervisors, a mayor or a manager as a public administrator. The schools may have separate boards or they may operate as do other branches under the general community

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board or executive. There is usually a single branch or division of service for the levy and collection of all taxes. As to personnel, some may have a civil service system or operate otherwise on an approach to a merit system. Others unfortunately may be influenced by politics and enjoy only limited stability and efficiency.

Regardless of these variations, all the communities under consideration have their systems of public schools and all have their problems of controlling communicable diseases both inside and outside the public schools. Where should the responsibility be placed for properly combating these diseases?

One naturally thinks first of the responsibility that the parents or family should assume. Certainly the home should do all that is practicable toward protecting its children, regardless of age, from communicable diseases. If financially able to utilize the services of private physicians, the parents should have their children immunized at an early age—that is, during the infancy or preschool period—against diphtheria, smallpox, typhoid and other diseases against which it may be feasible with safety to secure immunity. The home should be supplied with safe water, the facilities for the disposal of night soil should be adequate, the heating, ventilation and lighting should be hygienically correct, and the house, particularly the kitchen and dining room, should be screened against insects that may convey disease. The food should contain the essential elements and be supplied in sufficient quantity. By example and teaching the parents should as far as possible protect their children against disease and disability and provide them with a healthful environment. The extent to which parents can meet this program will vary. Certainly it is impracticable for even the fairly well-to-do families to keep their children at home for more than a part of the time, and they can do little to safeguard them against diseases for which immunizing or curative measures have not been developed. Again, many families are unable to provide themselves with the necessities of life, including medical care. Obviously, such families can do little to protect themselves or their community against communicable diseases. A number of families which could meet all or a part of the cost of immunizing their children are neglectful, careless or ignorant. It seems clear that the health of the community at best would be only partially safeguarded if complete reliance should be placed on parents. The economic factor is important with most families, but it is not the sole reason for failure of individuals and families to take appropriate protective measures against disease. It would seem then that there is some parental responsibility and that it should be developed as far as possible, but neither the community nor its schools can rely on it except to a limited degree.

The responsibility of the school for the control of communicable diseases is of particular interest. In the field of public services the schools usually have led. They began operating on an efficient basis with trained personnel that could meet reasonable qualification standards much earlier than have other community services. In general it may be said that in architecture, sanitation and hygienic conditions they have endeavored to set high standards in order that the pupils who enter them will enjoy health protection and not be subjected to needless health hazards. They have served as community demonstrations of correct health measures which the homes of the community would do well to emulate. The teachers in general have been required to teach hygiene and health protection, and as a rule they have been taught to recognize promptly symptoms of communicable diseases, with the result that there is a minimum of delay in calling in the health officer and his aids at the first appearance of a contagious disease, when the chances are best for preventing an epidemic. As already stated, some schools have employed their own physicians and nurses. The schools then, generally speaking, have been alert and have endeavored, as far as practicable, to protect the children and the schools from the serious consequences that may be caused by controllable diseases.

Notwithstanding the admirable health protection provided by the schools, the question is still How far can the schools go and how far should they go in setting up machinery at public expense for the control of communicable diseases? Corrective measures with respect to tonsils, adenoids, teeth and the production of immunity as far as practicable should be completed before the child reaches school age and comes under the jurisdiction of the schools. To have these procedures completed before the child starts school is advantageous to parents, schools and taxpayers, makes for stronger and healthier children, and minimizes the likelihood of epidemics interrupting the school work. After reaching school age the child will spend approximately 25 per cent of each school day under the jurisdiction of the school, but for the remaining 75 per cent of the school day and the 180 days, or about half the year, when the school is not in session, the school could not exercise jurisdiction over the child. Is not this period of school jurisdiction too limited to justify an attempt by the schools to assume responsibility for the control of disease among its pupils? Moreover, it is questionable whether the director of schools is qualified or should attempt to administer public service beyond the realm of education. Why should a school operate a medical or health service which at best can serve only that part of the community enrolled in the schools, and that group for only about 25 per cent or less of the school day and this for less than half the days in the year? From the standpoint of the community government, the schools have an extremely important function, but to my way of thinking it does not include the operation of a health service, a police service or a social welfare service. But the relationship of the schools to these services should be quite intimate.

The private physician is an important factor in the control of communicable diseases inside and outside the school, provided he is qualified and his services are utilized. Every one, practically speaking, favors utilizing his services by all families that can pay him for his work in combating disease and for other services. He should not be expected to render services without compensation. Giving health protection of the kind the private physician might render to families who themselves cannot afford his services is a responsibility of the community as a whole. The question that has not been satisfactorily settled is Shall the community hire the private physician to do such protective work and pay him on a fair basis or shall it require its full time employee, the health officer, to do the work? With respect to items such as immunization against diphtheria, the health officer's chief concern is that the child be immunized. He is not particularly interested in who produces the immunity. The financial problem in many communities has prevented the use of the private physician by the community in such situations. It has

been very difficult to secure enough public appropriation to pay salaries of a small full time staff for the health department. Only Detroit and possibly a few other cities so far have provided funds that could be used to compensate physicians for authorized protective services to families unable to pay. The private physician cannot be held responsible for controlling communicable diseases beyond the extent to which it is feasible to compensate him for his services. The same may be said of the local medical society. Both in and out of the school, physicians are actual and potential factors in disease control; but except when privately employed and compensated by families their work at public expense should be organized and supervised by the health department. This follows the procedure expected by taxpayers in the case of other public activities that they finance. As an influence in the education of the people in health protection measures, the physician likewise can and does play a useful rôle.

Since responsibility for protecting the health of the child can be assumed in part only by the family, in part only by the school and in part only by the private physician, we come finally to the public health department and a consideration of the extent to which it should be held responsible for the control of communicable diseases whenever and wherever they occur in the community, both inside and outside the schools. Divided responsibility is unsatisfactory. Since the community must have a general health service, there seems no occasion for financing a second one just for the schools. It is important, however, that the families, the schools and the physicians should support the community health organization and cooperate with it in every way. Likewise the health service, if wisely guided, will recognize the value of these forces and utilize them and others that can contribute to the success of health measures.

It seems hardly necessary, after making the foregoing remarks, to discuss the community health organization and its responsibility for the control of communicable diseases, so far as may be possible, for persons of all ages and at all times and places. In its task it should utilize all the support it can secure from the family, the school and the physician. At times it may be necessary also to call on the courts and police for support. If the community is to center responsibility on its health department it must make provision for an adequate staff of competent persons, each trained for the task he or she is to perform. This involves ample appropriations and conditions of service that make for stability. Ideas as to adequacy of staff in terms of cost vary from 50 cents per capita to $2 or more. The smaller the per capita expenditure the thinner in general will be the veneer of service. If the community services to fight fire, to enforce the laws or to combat disease are too weak to cope with situations as they arise, the consequences may be disastrous. Since the present object is merely to place responsibility specifically for the control of communicable disease in the community, there is no need to dwell on what the other functions of the health department should be or on the size and character of its personnel and budget beyond insisting that the organization should be adequate to make possible the discharging of its responsibilities.

In taking the position that the community should have a unified service for health, another for education and still another for social welfare (provision for the aged, the orphaned, the sick, the afflicted, the destitute and the underprivileged), I wish to state emphatically that such services should not be isolated compartments working independently. Many community problems, such for example as tuberculosis, syphilis or nutrition, have ramifications in every phase of community life. Moreover, the economic base on which the community and its services rest may determine the scope on which operations of all kinds, including education and health, may be planned. This means, of course, that there should be planning and guidance for building up and maintaining family and community resources at a high level. All the major problems of the community should be appraised by competent but detached persons. Plans for balanced programs for the various fields of service should be formulated and they should be related to present and potential resources. Trained public employees should be used and they should be permitted to operate under a merit system. The taxpayer should get a proper return on his expenditures. The present competition among community services for jurisdiction and for public funds should be regulated and reconciled. By indirection I am asserting that many local community governments, such as I have under consideration, whether county or city, are not effective, efficient or economical. Were this not true, it would not be difficult to settle the question under consideration relative to placing responsibility for controlling diseases in schools. Community problems of much greater magnitude exist and efforts should be made to solve them. The members of boards of supervisors and town councils and the mayors or other executives in most cases undoubtedly mean well, but they are not trained for their official responsibilities and in general they are part time, and their thinking is largely about private matters. A few communities have replaced this antiquated inefficient system of administration by employing trained business managers, sometimes called public administrators, to run the public business. When they are successful in securing a qualified executive, he in turn can secure trained and competent associates in each essential branch of the community's business. Under this plan there is reasonable assurance of teamwork, coordination of effort and cooperation. The taxpayer's dollar under this plan will as a rule accomplish much and the director of schools and the director of health will have much in common and little, if any, disagreement, and they can expect the wholehearted and consistent backing of the manager. The results in health protection and in other directions desired by both will be obtained through harmonious cooperation. While some communities are awaiting the arrival of this hoped for era, which I believe is on the way, I would urge that the community have but one health service and that the directors of education and of health jointly plan the best program of health protection for the community, with emphasis on the schools, that can be supplied with the financial resources in sight.

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Success Dwells in the Silences.—With a background of family practitioners, I have, by the fall of the dice, come to lead a life different from theirs, not so sequestered as that of some, but sufficiently so to let me estimate the recompenses and weigh the satisfactions which come from an existence of the two kinds. Certainly the self-sacrificing career of the practicing physician, respected and beloved of his community, is no less, perhaps even more, character making and ennobling than the secluded life of a pure laboratory worker, whatever be the importance of his researches and discoveries. In either case, "success dwells in the silences though fame be in the song."—Cushing, Harvey: Consecratio Medici and Other Papers, Boston, Little, Brown & Co., 1928.

NUTRITION PROBLEMS IN EDUCATION

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It is a principle of the school system in which I work that the health of the child comes first. This is an expression not merely of solicitude for the child's comfort and happiness but of the realization that it is the healthy child who can make best use of the education offered him. Indeed, it is a part of our creed that in childhood even the development of character proceeds more surely in the presence of health. It is recognized, too, in the Birmingham schools that good nutrition is a prerequisite to health, and every effort is made to see that the child is properly nourished. These efforts extend in many directions.

To evaluate properly the nutritional status of the child is no easy matter. It has been suggested that use be made of precise methods which measure the exact degree to which the pupil is lacking in certain specific food factors, but such precision is not possible. True, efforts are being made to devise methods of this type, an example of which is seen in the Jeans photometer, used for the detection of vitamin A deficiences, but these methods will find the greatest usefulness in the study of limited groups of children rather than in a general survey. Even to measure the precise degree of anemia from which the pupil suffers, which is an excellent way of detecting nutritional failure, is not feasible, for red cell counts and hemoglobin estimates on large groups of children are for many reasons impracticable. Anemia can be searched for in the school only by looking at the child's skin and mucous membranes. In spite of its inherent fallacies, it seems to me that the best criterion of the child's nutritive state is to be found in a comparison of height and weight. There are today few short cuts to diagnosis in medicine and none to the recognition of the nutritive status of large groups of school children. In this field, as in so many others in medicine, dependence must be placed on careful general observation and the putting together of the information obtained from many sources.

Nutritional failure in America is seldom simple or complete. It is, as a rule, multiple and incomplete and correspondingly complex. True, scurvy, active or latent, rickets, beriberi, perhaps, and in my section pellagra are occasionally recognized in the school child, but such well developed clear cut forms of deficiency disease are extremely rare, so rare in fact as to be of little interest in this discussion. It is the vague borderline case of nutritive failure of mild degree that is most interesting, for such cases are frequent. I am thinking of the child who doesn't get quite enough to eat, who is permitted to govern his diet by bizarre likes and dislikes, who has nervous anorexia, who thinks he can't drink milk or who will not eat because he is in too much haste to return to his play and who, as a result, is underweight, easily exhausted or nervously unstable. To recognize disorders of this type and to correct them is a prime duty of the school physician.

To what extent does the state of the child's body interfere with his ability to utilize his food properly? Fortunately it is not necessary to consider here, as one must in adult life, the "conditioning" of the gastrointestinal tract that comes from addiction to alcohol and other types of injury. Indeed, I know of no similar influence in childhood; but there are other disturbances, notably foci of infection, which are almost equally potent. Animal experiments and clinical experience both indicate that in the presence of a focus of infection certain food factors are poorly utilized. In the presence of diseased tonsils, an infected sinus or an abscessed tooth, for example, it is sometimes well nigh impossible to correct the child's secondary anemia; the iron administered is utilized poorly if at all. There is definite evidence, too, that vitamin A is utilized poorly in the presence of an infection. Remove the offending focus and the difficulty disappears. This applies to other nutritive substances. For this as well as for other reasons the eradication of infection becomes an important part of the nutritional program.

Should the school content itself with merely the correction of recognized nutritional failure and ignore the opportunity for enhancing the development of the apparently normal child? Should it ask only that the diet be adequate? The answer is definitely No. I should like to emphasize the little known fact that adequate and optimum as related to diet are by no means synonymous. The aim should be to reach the optimum.

Experience with the albino rat has shown that by suitable additions to a diet that previously has been regarded as adequate an entirely new race of rats, of greater vigor and larger stature, can be produced. Likewise, studies of population have shown that something similar can be accomplished for the human race; in numerous instances improved environmental conditions, notably with regard to food, have resulted in a more vigorous, taller race of men and women. The time to improve the environment is in childhood. In the Birmingham public schools it is realized that the child should have the optimum diet and that to secure this for him will require not only supervision but also education of three groups, the pupil, the parent and the teacher.

How is this to be done? The greatest energy should be expended not on individual, selected children but rather on the student body as a whole. Only too often home visitors, nutrition workers and school nurses become keenly interested in the individual case of obvious nutritional failure and focus all attention on this one child. His nutritional history, his dietary habits and the habits of his family are all closely scrutinized, and with good result, but the scope of such work is too limited. I realize fully the importance of correcting individual instances of nutritional failure, but this shrinks into relative insignificance when compared with the good to be achieved through improvement of the nutritive status of all the pupils. Not only will numerous cases of minor, unrecognized nutritive deficiency be thus corrected but the development of a large group of pupils will be materially enhanced. This demands well planned educational efforts addressed to the group as a whole.

To what extent is it proper in the teaching of health to emphasize the essential nature of any one food factor or group of factors? This, I am afraid, when carried too far is a dangerous thing. It is apt to lead to one of the greatest causes of nutritional failure in America, food faddism, a fault which the teacher of nutrition must constantly combat. I hasten to add that an exception should be made in the case of milk. Because of

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its importance to the child I think it proper to emphasize time and again the great value of milk; but, for example, to say too much about fruits and green vegetables, and their richness in vitamins and minerals, and too little about meat and eggs may result in the making of vegetarians. This would be a grievous mistake, for few forms of mental invalidism are more insidious than vegetarianism. The teaching should include instruction in the value of each of the foods and the place each should have in the diet, and emphasis should be placed always on the danger of the one-sided diet.

Experience taught us in the Birmingham schools many years ago the great educational value of the nutrition class. The underweight and otherwise undernourished children were placed in special classes and given intensive instruction in nutrition. In addition, each child was required to take specified amounts of milk, and graphic wall charts were kept of the gains in growth and weight. At intervals graduation exercises were held and pupils who had reached the requisite body weight and nutritional status were given an appropriate diploma. I emphasize the importance of the nutrition class not alone because of its help to the undernourished pupil but because of the manifold ramifications of its influence. The instruction given in these classes gradually percolated throughout the entire school and came in time to influence the dietary habits of an appreciable proportion of all the pupils. It was early noted, for example, that the milk sales in the lunch room were increased in each of the schools in which nutrition classes were established. Also, the influence of the class reached into the home and not infrequently influenced the dietary habits of the pupil's entire family. We encouraged ourselves to believe that we were improving the nutritive status of the entire community.

The responsibility for the teaching of health does not rest alone with the department of child health. In the school plan which has been developed in my city, this department examines the pupil, plans the work, offers advice, prepares bulletins for guidance and conducts a certain amount of supervision, but the greatest part of the instruction is given by the teacher. She is asked to correlate this instruction with her other work; for example, the writing of theses on nutrition may be used as a drill in English or the making of nutrition posters in the study of art. Of great importance are the auditorium exercises, of which the schools devote one each week to health. There are lectures on health and other exercises, and not infrequently a play about health is staged by the pupils. The teacher of the past generation did not prepare herself to teach nutrition or to give other forms of instruction on health, and it has not been an easy matter to demonstrate to her that this subject is just as important a part of the school work as the teaching of English. Gradually, however, she has come to recognize the part she is expected to play and is developing a genuine interest and enthusiasm for her work on health.

Of great help in this field of instruction is the example set by the lunch room. Although for various reasons the lunch room may best be conducted by an independent school agency, the maintenance of a relationship of cordial helpfulness between this agency and the department of child health is not difficult. We have not found it so. The department of child health of the Birmingham schools has no direct authority in the lunch room, but its advice is frequently sought on important matters, and its suggestions have always been adopted without question. In this way it has been possible to provide menus that are both nourishing and wholesome, and the example of these has been of distinct educational value.

CONCLUSIONS

A nutritional program for the public schools should include not only measures for the detection of the individual case of nutritional failure but comprehensive efforts toward an improvement in the nutritional status of the entire student body. It should be broadly educational.

HEARING PROBLEMS IN EDUCATION

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My purpose in this paper is to emphasize the coresponsibility of the educator and the physician in meeting the needs of the hard of hearing school child.

The possession of normal hearing acuity is necessary for a normal growth in intelligence, the acquisition of articulate speech, the development of a personality capable of winning success, and the attainment and preservation of one's economic and social security. These objectives should all be included among the aims of a modern education.

From the otologist's point of view the hearing problem of first importance in education is the prevention of hearing deficiencies and the conservation of hearing among school children.

A definite mandate to this effect was directed to educators and the medical profession alike when, at its meeting in 1926, the House of Delegates of the American Medical Medical Association, on the recommendation of the Section on Laryngology, Otology and Rhinology, passed the following resolution:

> Recognizing the fact that the most effective means for the prevention of deafness consists in the early detection of hearing impairment, thereby giving opportunity for the prompt removal of contributing causes, and believing it to be one of the important functions of our public school authorities to safeguard the integrity of the special sense organs as well as the general health of the school child; be it
>
> *Resolved,* By the Section on Laryngology, Otology and Rhinology of the American Medical Association that it heartily favors the provision by our public school authorities for regular, periodic examinations of the hearing acuity of all public school children, such examinations to be adequate to detect even slight degrees of hearing loss.

The obvious purpose of this resolution was to encourage the general use of scientifically accurate methods for the routine testing of the hearing of all school children, such methods having been made available by the release of audiometers of various types, particularly the 4-A or phonograph audiometer designed for group testing of school children in a practical, economical way. The older methods—the watch-tick, whisper, conversation voice and acoumeter—as ordinarily applied had proved sadly inadequate for this purpose.

This resolution was promptly adopted by all the national organizations composed of otolaryngologists and by many other national, state and local groups, including the American Federation of Organizations for the Hard of Hearing, now the American Society for the Hard of Hearing, and the American Student Health Association. Practical endorsement of the principle of early detection and prompt corrective treat-

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ment implied in the resolution has since been made by the boards of education of many widely distributed American communities in which the use of the audiometer has been incorporated in their respective school health programs.

The most outstanding and inspiring endorsements of the principle recently have been made by both the state and the city of New York. During the past two years the Board of Education of New York City, with the liberal support of federal and state funds, has put in successful operation as PWA Project 188-1177 a most comprehensive survey of the hearing of public and parochial school children, including the medical and educational follow up necessary to insure the child with defective hearing an equal educational opportunity with the normal hearing child.

This survey has included a screening test by the 4-A audiometer and a second test by the same means of all pupils found to have an apparent loss of 9 decibels or more. All who by the second test again showed a loss of 9 decibels were further checked with the 2-A audiometer, a pitch-range instrument used for determining hearing loss by pure tones over a range of from 64 to 8,192 cycles. This method has the endorsement of the state education department of New York and is already in use in many communities of the state. The program includes the reference of cases presenting discovered hearing impairment to the private otologist or, in indigent cases, to the otologist acting for the interested welfare organization.

During the past year the state of New York has enacted legislation making mandatory the testing of all public school children by the audiometer. This legislation was endorsed by and became effective through efforts of the Medical Society of the State of New York, the state education department and the state board of health, as well as by the New York League for the Hard of Hearing and other chapters of the American Society for the Hard of Hearing, and many civic-minded groups throughout the state. These two notably successful steps in the effort to conserve the hearing are a fine example for similar action in other states.

Surveys of the hearing already made by different observers have brought out many important facts pertinent to this educational problem.

The older methods of testing hearing acuity, because of their inaccuracy, disclose a definitely smaller number of children having a significant hearing loss than is revealed by the audiometer. Certain discrepancies noted in the results of the tests occur from failure to observe fundamental acoustic principles necessarily followed in testing hearing acuity by any method, the most important being that no test can be accurate when made in the presence of distracting or masking noises. Each ear must be tested separately, as is done with the audiometer, the other ear being excluded during the test.

The 4-A audiometer and its improved successor, the 4-B instrument, are used for expeditiously screening large groups of pupils who are old enough to write to dictation and for checking younger children by individual tests to disclose those having a significant hearing loss. The latter require a careful otolaryngologic examination, including a check up by a pitch-range audiometer whenever possible.

The supervision of such tests, their standardization and the provision for the medical follow up and, in case of indigence, provision for the indicated medical or surgical corrective treatment, constitute a hearing problem the solution of which should be directed by the state medical service. The closest cooperation between the state board of education and the state board of health is here necessary.

It should be emphasized that the needed medical care, whenever possible, should be rendered by the private practitioner or the otolaryngologist. To counteract the possible apprehension that these state-directed activities may lead to an alienation of the private patient from his physician, it has been suggested by Dr. Burt R. Shurly, an otologist and a member of the Detroit Board of Education, that the name of the family physician be regularly placed on the health records of all public school pupils.

All indigent hard of hearing children should be provided with needed medical care equal in quality to that received by the private patient. The local physicians rendering this service should be adequately compensated in a manner not prejudicial to the interests of the medical profession.

The question of state-operated ear clinics, stationary or ambulatory, is one of local expediency. In certain rural areas they are especially needed.

Audiometric surveys of school children have revealed the important fact that a slight hearing defect, in some cases not recognized by the pupil himself, his parents or his teachers, often causes retardation, speech defects, an inferiority complex and unsocial behavior problems.

Retardation, the pest of the teacher and a burden to the taxpayer, which results from many causes, occurs at least twice as often among children with a hearing defect as among normal hearing children. Speech defects have been shown to occur eight times as frequently among hard of hearing children as among pupils who hear normally.

Statistics for the occurrence of an inferiority complex and behavior problems due to hearing defects are not available, but every experienced teacher and staff member of a child guidance clinic knows the damaging results from diffidence, discouragement and lowered morale in the child who has failed because of an overlooked, neglected or uncompensated hearing deficiency.

The periodic testing of school children with the audiometer in Minneapolis over a ten year period has proved the effectiveness of this procedure in definitely reducing the incidence of hearing impairment in the school population. While this in part has resulted from such factors as immunization, stricter isolation of cases of contagious diseases and better hygiene, the marked drop from 8 per cent in 1926 to 5.3 in 1936 is due chiefly to the production of a greater community ear consciousness, especially on the part of parents.

Defective hearing is definitely more prevalent in rural areas than in communities having an effective school health program. In the rural schools adjacent to Minneapolis, according to a survey made as a University of Minnesota WPA project, the incidence of a significant loss of hearing was found to be 13.6 per cent, while for the same age group, as tested by the same technic, pupils in the city schools showed an incidence of only 5.3 per cent. In this connection it is of interest to note that Minnesota public health nurses carefully testing rural school children by the old methods reported only 2.2 per cent as having a significant hearing loss, as compared with 8 per cent found among Minneapolis school children when the audiometer was first introduced.

Another important problem in education related to the hard of hearing pupil is that of providing instruction

in lip reading and speech correction in the regular schools for all pupils who need it in order to keep up with their classes. Those with a severe hearing loss and having marked speech difficulties who cannot advantageously continue in regular classes must be given this special help in residential and day schools; but they should not be segregated with the totally deaf, which practice, in the opinion of those best informed, is a gross pedagogic error. The determination of the degree of hearing loss requiring special instruction and admission to a special school should be made on the recommendation of a qualified otologist.

A further problem which demands the attention of the educator is the provision of suitable electrical hearing devices for such hard of hearing pupils as can be benefited by their use, in the form both of portable or semiportable individual hearing devices and of multiple aids for use in group instruction in grade subjects and for speech training and correction. Marked improvements recently made in the efficiency of electrical hearing aids has greatly broadened their field of application. Audiometer tests of pupils in schools for the hard of hearing and the deaf disclose the fact that some of the pupils have sufficient residual hearing to have enabled them to pursue their education in the home school, could they have been equipped with a modern hearing aid in early childhood. They had been placed in special schools because of their speech difficulties.

Another hearing problem confronting the educator is the conservation of residual hearing. Even a slight remnant of hearing power in the speech range, when supplemented by lip reading and, in suitable cases, by a hearing aid, is useful in acquiring speech and in preserving rhythm, flexibility, enunciation, accent and other qualities. Therefore it is important to guard all pupils, especially those in day and residential schools, against infections of the upper respiratory tract and contagious and other diseases that are likely to cause further hearing loss.

Two further hearing problems that are related to education are vocational guidance for older children and the provision of instruction in lip reading for adults. The latter is being satisfactorily met in many cities through cooperation between boards of education and local chapters of the American Society for the Hard of Hearing.

The problem of deafness prevention and the best care of the hard of hearing is a national educational and medical problem of large magnitude. The two chief obstacles that stand in the way of its early solution are, first, a general lack of knowledge concerning the fundamental principles involved and the large possibilities of attainment through intelligent, organized effort, and, second, the pathetic lack of needed funds.

The first obstacle can be overcome only by a well directed campaign of education among physicians, educators, parent-teacher organizations, teachers in training, social welfare workers and legislators.

The second obstacle, the urgent need of funds, can be met by well planned, national and state welfare and social security legislation. The necessary leadership to secure effective legislation of this kind can best come from those organizations which are here represented; namely, the American Education Association and the Section on Pediatrics and the Section on Preventive and Industrial Medicine and Public Health of the American Medical Association working in cooperation with parent-teacher groups.

78 South Ninth Street.

LIGHT IN THE SCHOOLROOM

EDWARD JACKSON, M.D.

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The command "Let there be light" was the beginning of creation, and all created life has found it "was good." Plants and animals transform the force of the sun's rays into food and life. The human race, in all languages, has used light to interpret joy, hope, intelligence, information, truth. The contrast of light and darkness explains the contrast of good and evil.

Each day in the past winter I have watched the children running to school, shouting to one another, happy to greet one another, to get together for a few minutes outdoors on the playground. It seemed so different from Shakespeare's picture of "the schoolboy with shining morning face, creeping like a snail, unwillingly to school." There seemed no reason for this contrast except that the playground was out in the sunlight and the schoolroom was in comparative darkness. Perhaps the schoolrooms were even worse in Shakespeare's time than they are today.

The bright joy of childhood comes to the child in the sunlight. There is no reason why he should be deprived of it. Long ago the fear of enemies drove cave dwellers into darkness or into forts for protection or people have been driven into houses for rest. These have made the darkness of the shut in and have made us tolerant of poor lighting. Our churches for introspection and colleges for instruction have given to near-darkness a prestige and toleration that make them suggestive of learning. But the child has lived outdoors in all ages, drawing health, strength, stimulus and joy from the sunshine. It is a serious change from the free, self direction of childhood—the following of race instincts and the outlet in games that have been played for generations until they fit in with the natural development—to the performance of imposed tasks, justified only by their preparation to meet the needs of later life. This change is made more difficult by the requirement of giving up, with freedom of conduct, the stimulus of good light.

If school could begin with two years of supervised play, in outdoor playgrounds, with full light, it would help to get the full cooperation of the child. Loss of the child's hearty, interested cooperation is the first grave error of our educational system. It is a more serious error than we have known. It has set up an opposition between natural desire and suggested tasks, between normal activity and purposeful occupation, between what we want to do and what is expected of us. It sets up a conflict between study and health. Those who most need health sacrifice it for study. Those who most need opportunities of study throw them away to cultivate the natural desire for health and bodily vigor. Failure to recognize the child's inherited need and enjoyment of light outweighs in effect much of our labor on the curriculum and skill in pedagogy.

More than all else, it lowers the child's standards of health as a main objective. This is a loss which even a lifetime study of health and the health interests of patients fails to restore wholly. Let us understand this in preparing to deal with all the health problems in the schools. We, who have to consider the problems of

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vision in the schools, are constantly being reminded, and are often baffled, by the low standards of lighting needs that are prevalent in the community.

The light standards of the children are the light standards of the human race, the light standards of savage men who hunted and fought and worked under the open sky. They are the light standards of the higher animals that see their food and their enemies by the light of day; not that of the owl, the hyena or even the wolf, guided by the sense of smell and mainly hunting at night. The child's standards must also include those of macular vision; to recognize the minute differences in the forms of letters, textures and structures, which require more light than the objects perceived in the peripheral field of vision. The only standards acceptable for the school are those of optimal vision—the highest visual acuity, the easiest and quickest vision, good light on a cloudy day and in the morning and evening.

If we wish to inculcate principles of justice, we must practice equal justice in the essentials of school life. A physician who became the health officer of his city and the president of his state medical society knew, as a boy, that he was near sighted. But his father did not "believe" that boys should wear glasses, and his teacher's ideas of justice did not include peculiarities or disabilities of particular boys. His teacher wrote something on the blackboard and told William to read it from his seat. William said "I cannot see it." "Yes, you can," said the teacher, and told the next boy to read it, who read it promptly and easily. "Now you can see it," said the teacher. "I can't see it," repeated William. Then, as William told it when he was president of the medical society, "he boxed my ears and gave me ten demerits."

With the light meters of the present day, the light that falls on each desk and book can be measured in every part of the schoolroom. Doing this in some of the best lighted schoolrooms of Denver, we found that the light at the bottom of the windows opening to the clear sky was from 100 to 200 foot-candles. On the tops of the row of desks nearest these windows it was from 40 to 50 foot-candles. On the desks farthest from the windows it was from 5 to 10 foot-candles, and on the blackboard smeared with chalk, on which were written things for all the children to read, it was always less than 10 foot-candles; in some parts of the room the eyes had also to contend with glare of the reflections of the windows.

In the School Clinic of the University of Colorado Medical School, we found two sisters who had reached the seventh and eighth grades in school and who kept up with their classes. This doubtless depended on their using very strong light and getting much help from other members of their family, for they each had 15 diopters of hyperopia—more than is commonly left after removing a cataract from an eye that has previously been hyperopic.

Justice requires something more than good light in the schoolroom. But it cannot be done without adequate light for all the children. And this cannot be attained until teachers and parents and pupils understand what is good light and its great importance at all times. When all of these have mastered this essential, school authorities, school architects and school financiers still have to be educated to know that good lighting and justice are worth having in any community.

1612 Tremont Place.

HEALTH EDUCATION AND HEALTH SERVICES IN SCHOOLS

FROM THE POINT OF VIEW OF THE EDUCATOR

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The term "health education" has been used to cover all conditions and activities influencing the health of the school child. In this sense it includes the school health service but since, in the subject assigned, I have both "health education" and "health service," it must have been the intention of the program makers to limit the former expression to health instruction. The title might then be reworded to read "The Health Service from an Educational or Informational Point of View."

The teacher and the physician or, to be more exact, a few teachers and a few physicians, have always been mutually interested in the welfare of the school child. The first book on hygiene intended for the use of students was written 350 years ago by a physician who was also a teacher. A hundred years ago Horace Mann, an educator, was the leading agent in efforts to improve schoolroom conditions and to furnish instruction in hygiene to all children. But he was ably abetted in his endeavors by a physician, William Alcott, who was the author of an interesting textbook on physiology and hygiene for the use of schools. Alcott urged the adequate training of teachers in "a thorough and practical knowledge of the science of human life and health." Moreover, he expressed his "doubts whether our common schools will ever become what they ought to be as places for the promotion of health until they are brought under the care of judicious medical men. . . . For, say what you will of the novelty of such a plan or proposal, our schools ought to have their regular physicians, as much as our houses of industry, our almshouses or our penitentiaries." He continued, "there will be daily or hourly recurring cases" which "the honest, faithful, enquiring teachers who have had their minds turned to the subject of health . . . will want to present to the medical man at his semiweekly, weekly or monthly visits."

In this prophetic proposal of a school health service, it will be noted that the service was not to be carried on by physicians but by physicians with the assistance of the teachers.

When, a half century later, this dream of Alcott's became a reality, the duty of the fifty "medical visitors" appointed to the schools of Boston was to inspect the children previously selected and sent to them by the classroom teachers as showing signs or symptoms of disease. They made the diagnoses but the teachers did the examining. We sometimes become fretful over the seeming lack of results from our schemes of medical inspection and it is encouraging to remember that in four months 9,000 children were suspected by the Boston teachers as ailing, and the suspicion was confirmed in the case of 5,825 pupils, or nearly two out of three, and 1,033 were sent home. The great majority had skin diseases, but there were fifty-eight cases of diphtheria, nineteen of scarlet fever, forty-two of measles, 178 of whooping cough, thirty-five of mumps, twenty-two of chickenpox and seven of congenital

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syphilis. Considering that the teachers were not at all trained for this function, they had done a good piece of work. The superintendent could well comment "I believe the importance of this work can hardly be overestimated."

This beginning in health services (in which the educator and physician joined forces for the reduction and prevention of disease) was brought to pass after much effort by a public health official who was himself a physician. It was chiefly a police and a protective, and not an educative, measure. In other words it was a service, but it was a service to education in that it reduced absenteeism on account of illness and improved the condition of those who had been plagued, while present, by itch mites, head lice and other signs of insanitation.

Educators had long been more or less concerned over the child with poor vision and the deafened pupil and had sometimes asked the parents to consider the need of seeing a physician. Five years after the systematic search for disease was instituted in Boston, the state of Connecticut passed a law requiring the examination, every three years, of the vision of school children. Here again the examining was to be done by teachers, and when vision was defective the parents were notified, in the hope that something would be done about it. This examination could have been used in connection with health instruction, but the teaching of hygiene was falling to a low ebb since its high water mark in the eighties and the examination proved largely a service, although it helped to impress some children and some parents that there was such a thing as poor vision, which could often be improved.

Beginning with this examination of the most important mechanism of the child having to do with his acquisition of knowledge, the interest of educators, or physicians employed by schools, extended to an appraisal, of various degrees of thoroughness, of other bodily conditions that might affect the child in his school progress. In seven states the responsibility of making these more extensive examinations is laid by law on the teacher and in eleven more the teacher is included among the examiners, although in only two states is any training for this function to be furnished.

Since this was a development from the search for scabies or for scarlet fever, the same afterfinding procedures were followed. While the child was not sent home, a note was sent to the parent telling of conditions that seemed to exist and concerning which a physician should be consulted.

Growing, as it did, out of the search for communicable disease, for which at this time there were, except for smallpox, no preventive measures other than isolation, it did not occur to the examiner that something more than a notification might be desirable. However, some educator, school physician or school hygienist suggested that the medical inspection should be made more of an educational event for both child and parent, and the only way to make this event truly educative is for the examiner to take the person most interested, the parent, into his confidence, first hand, and to ask him to be present at the examination.

Of course, when the process of examination consisted in the scanning of a dozen or so children per minute there was no possibility of having any one present besides the physician, child and possibly a recording angel in the person of a nurse. This speedy process was not the fault of the educator, and the educator in the person of the teacher as first examiner was left out of account. There was a serious neglect of an important historical precedent.

Attempts have been made in certain grades at school to prepare the child for his physical examination by explaining how it will be done and that its purpose is not merely to find what is wrong with him but to help him to keep fit for work and play. The value of periodic examinations is emphasized. The examination has also been used by many teachers as a hook on which to hang lessons concerning health. Such teaching should produce good results, but it does not compensate for a lack of intimacy and understanding with parents and especially in connection with the examination of children in their earlier years.

The purpose of the health service is not merely to find defects or diseases but to get something done about them. Something had to be done about communicable diseases, but the matter of defects was not taken so seriously. Little attention was paid to the curt note sent by the principal in the earlier days of medical inspection. The parent was not present at the examination and did not know what it was all about. The laborious visits of the school nurse helped to enlighten the parent but, even so, as low as 15 per cent of defects treated or corrected are still reported, which means an enormous waste of time and public funds. Moreover, if at all educative, it would seem to be in the direction of developing a feeling of futility toward the efforts made by the school, for the parent sees that his child usually survives despite his refusal to follow the advice offered.

The child not only survives but gets along in school, for except in a very small proportion of children (those having very gross defects) there is little evident relationship between physical condition and school progress. There may be a relationship between even minor ailments and fitness for work and play sometime in afterschool life, but the medical service might confine itself to conditions which it is certain may prove a menace and are worth the cost and sometimes the risk of treatment.

Here again we need to take the parent and teacher into our confidence to make sure we are right before we go ahead. There is considerable evidence that if this were done not so many tonsils would be sent to the guillotine and the evidence of good results would be less dilute than when 90 per cent are recommended for this not altogether safe ordeal. The same is true for other conditions often labeled defects.

In one of our school systems, two thirds of the glasses prescribed and fitted were found to be residing in a drawer at home instead of on the noses of the children for whom they were intended. In England, of 1,000 children who had been supplied with glasses and who had been out of school six years or more, only 50 per cent were wearing them. Treatment was forthcoming in all these cases, but was the treatment needed or was it followed up to see whether there was need of further treatment?

Of seventy school physicians one, according to Newmayer, pronounced five children out of 1,000 anemic and another 250. Either the former was right and the rest were all wrong or the latter was correct and the others mistaken. Of the same seventy, one found nasal obstruction in 1 per cent, another in 22 per cent. If only five in 1,000 need treatment for anemia, we have no business trying to secure treatment for fifty times that number. Children cannot be standardized, and doctors will always disagree; but if we are not to waste public funds and if we are not to educate in the direction of considering the findings and recommendations of the

medical inspector of slight consequence, we should be conservative and should study the results of our efforts.

Every honest physician will confess that he knows none too much about any child whom he examines and he will be willing to learn all he can from both teacher and parent or from a colleague. The physician is always in need of education.

There is, in our school medical inspection records, a mine of information—a means of comparison of the treated with, for controls, the nontreated—a mine which, save in Philadelphia, Rochester and Minneapolis, has hardly been touched. Unfortunately we have as yet had only a handful of persons in our school health services who were interested in that service professionally and in reducing it to as nearly a science as the art of school medical examination can be made.

A most important reason for being conservative in our observations is the difficulty of securing treatment for those children whose parents cannot afford to pay. The educator and his agent, the medical inspector, have no wish to set up treatment clinics except as they are obliged to do so in order not to waste the efforts put forth in finding the conditions recommended for treatment. In the case of dental defects they are justified by the overwhelming problem of treatment that swamps the dental profession. There is also the matter of refraction. The cost of refraction by a private physician is often prohibitive for a large percentages of cases and some public means for this service and for the supply of glasses is often imperative. However, the school would gladly have this work of treatment done outside its walls. But it wants it done by somebody in order to achieve what it starts out to achieve—the physical betterment of the child.

In the beginnings of the search for conditions in the mechanisms of the child that might possibly be improved, there was no intention of taking this work out of the hands of the private physician. Although this was an innovation in medical procedure, parents were often asked to have the routine examination made at first hand and before the child was sent to school. In the medical inspection law of New York State, passed twenty-four years ago, every pupil was required to furnish, annually, at the opening of school, a certificate signed by a duly licensed physician stating whether the pupil "is in fit condition of bodily health to permit his or her attendance at the public schools." If the certificate is not presented, a notice is to be served the parent and if a certificate of physical fitness is not forthcoming within fifteen days the penalty is an examination by a physician employed by the school. Ninety-five out of a hundred parents prefer to pay this money-saving penalty, so that this effort at securing examination by private physicians is a conspicuous failure. It is evident that other than a legal method of approach is necessary if periodic examinations, out of school, are to be secured, even by those who can well afford to pay for such examinations. Dr. Smiley [1] has had something interesting to say on this subject, and recently an account was given by Dr. Shurly [2] of progress in the linking of the educator and the family physician in Detroit. It is to be noted, however, from this article, that in some schools only 22 per cent of families have such a medical relationship.

The educator or the school health service has no desire to minimize the work of the private physician, although it has not always done what it might to emphasize his importance. Nor has the physician any desire to have any child go untreated, or without adequate treatment. There is usually need for more sympathetic and systematic junction of forces to determine in each community where the lines are to be drawn between families that can and those that cannot pay and to see that all children are treated.

As useful as it is, the educator would like to see the health service reduced to a minimum and finally eliminated. It has helped to eliminate itself so far, for defects and chronic ailments are to a considerable extent the result of communicable disease, and the incidence of communicable disease has certainly been reduced. Defects are also a consequence of malnutrition, and while it is late to do anything about nutrition at school age, the educator and his health service hope that their teaching will have some effect on the nutrition of the next generation.

1. Smiley, D. F.: An Approach to the Problem of School Medical and Dental Service, J. A. M. A. **108**: 435 (Feb. 6) 1937.
2. Shurly, B. R.: The Family Doctor, J. A. M. A. **108**: 169B (May 22) 1937.

SUMMARY

From this historical review it will be noted that, as suggested a century ago, the teacher is an important agent in the school health service and, as Alcott mentioned, she should be better trained for this service. As a prominent school health officer remarked recently, "the teacher is the keystone of medical inspection." The teacher is the daily examiner, who is as important as the periodic examiner.

In the rapid shift from the isolation of communicable disease to attempts to improve bodily mechanisms, we have only begun to be educational. To be educational we shall need to take the parent into our confidence, and in so doing the medical examiner himself may learn something. He may also educate himself by study of the results of his own work.

It is not educational and it is a waste of time to attempt to do too much, and we need to be conservative in our conclusions and persistent in getting something done about them.

It is a part of education to see that the family physician is given the place he deserves in the social scheme. He should be the periodic examiner if possible. On the other hand, the physician should reciprocate by doing his utmost to provide treatment of the indigent.

The director of the school health service needs to be educated for making the most of his opportunities both for service and for study, in order that his service may be more economical, more effective and more educational.

The educator would, I am sure, be glad if the need for a medical service were a thing of the past, but at present he is in need of a better health service, a service better manned and better managed—one which cooperates fully with the medical profession and which receives the full cooperation of that profession.

U. S. Department of the Interior, Office of Education.

ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. FERRELL, MCLESTER, NEWHART, JACKSON AND ROGERS

DR. ALLAN G. IRELAND, Trenton, N. J.: In facing this problem, it is essential that it be known what is meant by education. Great changes have taken place since our school days. Then it was a three R proposition. Today it is guidance toward human living and all that the term implies. Whatever aims are accepted for education there is one underlying theme, that education seeks first to perpetuate society; that is, the state. The best instrument or institution to date is the public

school. Into it each year are placed the raw human material of every community in the nation. It is this material we fashion and train to take our places as we pass on. It becomes the state of succeeding generations and we hope a better state on increasingly higher levels of human living. For this purpose the three R's and allied subjects alone will not suffice. We are now in the process of weighing the accumulated knowledge of man. We discard some and we save some. Where we do this wisely we save those bits which go to give our young successors greater health, security and happiness. To this end the core program is basically health—physical, mental, emotional and social. The school staff is made up of specialists. There are teachers of English, French, mathematics, music, home economics and others. We approve of this. Why not then such specialists as physicians, dentists, nurses, social case workers, visiting teachers, psychologists, pychiatrists and nutritionists? It is logical in view of the changing concept of education. The superintendent of schools is the executive. His job is integration, in which he holds the reins to these specialists. He has one goal—education of the child in an all-round preparation for socialized human living. To attain his goal, he can't drive half a team, leaving the other half to another agency, another executive. The physician and the nurse are allies of the teacher. They contribute their talents to the whole teaching process. To do this with the whole-hearted cooperation that is essential, the specialists must be on the same team with the teacher and under the same captain.

DR. JOSEPH H. KLER, New Brunswick, N. J.: That there is need of a school health program every one will admit. However, the scope of this program presents technical problems and problems of integration. The processes of education are designed to complement the broad educational program of the home. Our form of government did not endow the school with complete control over the bringing up of our children. The home is still the unit of our civilization and as such must be the center of all our social processes. Since education is dependent on health, a school health program is necessary. As such we accept it. The controversial points are its scope. Why must we commit ourselves to a fixed program that all schools must adopt? We know that practically every community presents health problems peculiar to it. Every school will present its individual problems. Does it not seem reasonable to ask the cooperation of the medical profession with the school health authorities as well as the cooperation of the school physicians with the medical profession, as represented by the American Medical Association, in the development of an effective and mutually advantageous school health program? School physicians as a group need a helping hand. With cooperation alone can we safeguard the health of our children and discharge our social and professional responsibility. This cooperation can best be developed through meetings such as this one, where we may discuss our problems. I therefore move that we extend our thanks to the committee in charge of this symposium and at the same time request the American Medical Association to arrange for a similar meeting to be held at subsequent annual sessions.

DR. THURMAN B. RICE, Indianapolis: I have been much interested in the papers concerning good hearing and vision. There is one point which I should like to add to the discussion. It has to do with the matter of character formation in relation to underlying physical defects. Moderately short sighted children tend strongly to become bookworms and to develop without outdoor life or sports. Such persons are likely to develop postural defects, owing to the fact that they do not get sufficient exercise. They are inclined to have poor digestions and to be choice about their food, and then such persons become finicky. This is due to the fact probably that they do not get a very broad conception of the surrounding world. Moderately far sighted children are, on the other hand, likely to be considered dull at school though they are bright enough outside. Such children often come to be known as motor minded. They love outdoor sports and activities but do not sufficiently appreciate the finer details of life, for example. Glasses on these persons would tend to correct the underlying physical defect and tend strongly to improve their general reactions to normal living conditions. Persons who are deaf are frequently inattentive and strongly inclined to withdraw into themselves. Not appreciating the annoyance that noise is to the normal individual, they frequently allow themselves to become unnecessarily noisy. With reference to Dr. McLester's paper there is one point which I should like to emphasize. It is agreed that the modern generation is better fed than any previous generation and, as evidence of this, college students are now from 1 to 2 inches taller than were students of fifty or sixty years ago. This seems at first thought to be definitely a good thing but one may wonder a little whether it really is or not. If we have assurance that these boys and girls who are 1 or 2 inches taller and have heavier bones and muscles are really better off by being so, so far as I know there is no evidence that their hearts are correspondingly larger or that their kidneys have more tubules or better tubules. Much as we admire a fine looking, upstanding young woman or young man, scientific caution compels us to wonder whether the parenchymatous organs are correspondingly developed. If it should finally be shown that the heart, kidneys and other related organs are those of a person weighing 150 pounds it would certainly be no advantage for him to weigh 175. It might even be a handicap. Nutrition is an extremely complicated phenomenon and cannot be measured in terms of height, weight or even red cell count or percentage of hemoglobin. This being the case, it is still impossible to make sure just when nutrition may be said to have been the best.

DR. D. F. SMILEY, Ithaca, N. Y.: If the present were the relatively simple civilization of the early Greeks, our schooling might well consist of philosophy to teach us how to think, and physical training. Modern civilization has, however, long since outmoded this simple system of education. We still try to teach children how to think but we have also added numerous factual and vocational courses. We still too often continue to use the "physical training approach," forgetting (1) that in modern life physical development per se is not nearly as important as sound health habits, sound health knowledge, sound health attitudes and sound methods of health maintenance, (2) that physical training is only a small part of what school physicians, dentists, nurses, physical educators and specially trained health teachers can provide to protect and promote the health of school children. What is most needed in our public schools is a preventive medical program built along lines of the six point public health program of our city health departments; i. e., communicable disease control measures, sanitation, child hygiene measures, vital statistics, public health laboratory services, health education. Assuming that this goal was adopted, what would be the essential steps in approaching it? I would suggest five steps: 1. Develop short training courses, which will prepare school physicians to attack the health problems intelligently and on the preventive medical basis. 2. Develop a standard contract to be used by all physicians in their contractual relations with the public schools, this contract to set certain minimum standards as to the program of activities and the staff to carry it on. It would not permit of a half time physician being asked to examine 4,500 children each year. 3. Develop among the medical profession the following conceptions of school medical service: (*a*) It is not a treatment service, (*b*) it is not expected to provide each child with a meticulous medical examination annually (that is the parents' responsibility and family physician's function), (*c*) it is expected to provide a continuous health supervisory service based on the continuous screening by the classroom teachers, (*d*) it is expected to provide certain group tests, and (*e*) if properly organized it can be made a high grade preventive medical service to which any doctor can be proud to contribute through a lifetime of service. 4. Train all elementary teachers in the observation of the child's physical condition and in the elements of health instruction suitable to his age. 5. Develop at our universities special training courses for health teachers who will superimpose on a foundation of science courses and professional education courses a course in health education which will prepare them (*a*) to present adequately to high school pupils the facts of modern preventive medicine and (*b*) to keep their health knowledge abreast of the many changes and additions that are being made to health knowledge from month to month.

WOOD TICK PARALYSIS IN CHILDREN

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Wood tick paralysis in children [1] is acute and progressive but usually afebrile. The child awakens in the morning feeling entirely well. However, as soon as he attempts to stand alone he collapses. In an effort to walk with support the gait proves ataxic. In a few hours, walking and even standing with support become impossible because of the progressive and increasing muscular weakness. At the beginning of the illness it is generally difficult for the child to feed himself on account of the ataxic movements of the upper extremities, and after a few hours self feeding will probably be impossible.

The tick which has caused the paralysis has usually been feeding and engorging for six days. It may be attached anywhere on the body. Ticks have been recovered in cases of paralyzed children under my care from the axilla, the groin, over the mastoid region and over the lower part of the spine. However, I have most often discovered the ticks in the occipital region of the scalp. Prompt removal of the tick, which is easily accomplished by gentle steady pull, is always followed by rapid improvement, with complete recovery in about forty-eight hours. Delayed removal is, in most cases, without avail, because fatal respiratory paralysis develops. In adults and in larger animals the paralysis is far less likely to be fatal; it may be localized to an extremity and followed by complete recovery even though the tick is not removed promptly. Ticks that I have taken from paralyzed children have been reported to be impregnated female wood ticks. Attempts to reproduce the paralysis in animals, the same ticks being used, have been uniformly unsuccessful. After detachment the engorged female usually refuses to refeed.

Knowledge of tick paralysis has not reached the majority of older physicians or, it seems, even the majority of pediatricians. Recent medical graduates are often without any information on the subject, though they may establish practices in the affected area, where damaging criticism follows missed diagnosis. Physicians frequently confuse tick paralysis with the ascending type of acute polioencephalitis. Tick paralysis in man has been reported from Australia, British Columbia and the five states of Montana, Oregon, Wyoming, Idaho and Washington. Attention has also been directed to the occurrence of the paralysis in animals, usually sheep and cattle, in the same districts, in Crete and in Cape Colony. The range of the wood tick extends outward beyond the Rocky Mountain region and adjacent areas to include a total of thirteen states. It is not unreasonable, therefore, to anticipate the occurrence of tick paralysis in hitherto unreported localities. It is fortunate that the annual wood tick season is about completed by the time of early summer travel. Consequently, cases of tick paralysis are usually limited to permanent residents.

It is interesting to learn that in some countries tick paralysis is transmitted by species of ticks other than the wood tick. In Australia it is due to the common scrub tick, Ixodes holocyclus Newmann; in Cape Colony a still different species, Ixodes pilosus Koch, is the offender. Experimental tick paralysis has been produced by laboratory workers [2] in Germany from the eggs of the brown, or tropical, dog tick, Rhipicephalus sanguineous Latreille, although in nature this tick has never been reported to have caused paralysis. This brown dog tick is common in the United States, where, however, it rarely bites man, though in certain other countries it is reported to bite man frequently. In the United States thirteen species of ticks [3] are found, of which five species are agents of disease, five potential agents of disease and three only indirectly connected with disease in man. Paralytic effects are limited to the wood tick. It should be noted that in the United States tick paralysis, like other tick-transmitted diseases, such as Rocky Mountain spotted fever, may not always be produced by the Rocky Mountain wood tick alone.

THE WOOD TICK

The Rocky Mountain wood tick is scientifically known as Dermacentor andersoni Stiles. This tick is an agent in the transmission or causation of three and probably four distinct disease entities in man; namely, Rocky Mountain spotted fever, tularemia, tick paralysis and Colorado tick fever.

The wood tick lives not only in the Rocky Mountain regions and adjacent areas but to the West in Washington, Oregon and California and to the East in the southwest corner of North Dakota and probably in the Black Hills country of western South Dakota, as well as occasionally in western Nebraska. In Colorado the tick probably does not live far beyond the eastern limit of the Rocky Mountain system. In the extreme south it has been found in at least the northern portion of New Mexico and Arizona. To the extreme north it has been discovered a considerable distance into British Columbia and is present in at least the southern portions of the provinces of Alberta and Saskatchewan.

THE BIOLOGY OF THE WOOD TICK [4]

Like all ticks, Dermacentor andersoni Stiles sucks blood and lays eggs. The eggs are normally deposited on the ground during the late spring and early summer. Six-legged larvae soon hatch from the pile of tick eggs, disperse to some extent, climb up grass and other vegetation and attach to passing small mammals, on which they feed. Being fully fed in about six days, the larvae drop to the ground, crawl away for protection, become inactive and soon change to eight-legged nymphae. These nymphae usually crawl into hiding and appear again the following spring, ready to feed on the blood of the same small rodents. After feeding for about a week they drop off, hide away and, after approximately three weeks of quiescence, appear as adults, either male or female. The adult tick seeks to conceal itself under waste, at or near the surface of the soil, until the following spring, when it comes out and begins its search for a new host, and the host it now seeks is one of the larger animals. Ticks are not primarily a parasite of man, and when man is bitten it is merely an accident of nature. The normal feeding season of adult ticks begins usually in March or early April and terminates with the coming of hot, dry

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R. R. Parker, director of the Rocky Mountain Laboratory, United States Public Health Service, Hamilton, Mont., gave the author help, guidance and encouragement.

1. McCornack, P. D.: Paralysis in Children Due to the Bite of Wood Ticks, J. A. M. A. **77**: 260 (July 23) 1921.

2. Regendanz, P., and Reichenow, E.: Ueber Zeckengift und Zeckenparalyse, Arch. f. Schiffs- u. Tropen-Hyg. **35**: 255-273 (May) 1931.

3. Parker, R. R.; Philip, Cornelius B.; Davis, Gordon E., and Cooley, R. A.: Ticks in the United States in Relation to Disease in Man, Contribution from the Rocky Mountain Laboratory, U. S. P. H. Laboratory, Hamilton, Mont., to be published.

4. Cooley, R. A.: The Rocky Mountain Wood Tick, Bull. 268, Montana State College, Agricultural Experiment Station, Bozeman, Mont., November 1932.

weather, generally in June or early July. Copulation takes place on the host. The female, when fully fed, in about nine days, drops to the ground and crawls away to find a suitable place to lay her eggs. The egg laying begins about a week afterward and consumes about three weeks. Approximately 300 eggs are laid each day. Thus the total deposited by one female averages some 6,000. The eggs require approximately thirty-five days for incubation and are hatched during the summer in which they are laid, in time for the larvae to feed on their chosen host. The normal cycle of the tick is two years. It has, however, the remarkable ability to go for as long as from two to four years without food while waiting for an opportunity to attach itself to a suitable host.

THE TICK VENOM

Experimental tick paralysis by attachment of female ticks has been produced in animals in from six to thirteen days, according to the size of the animal or the rapidity of engorgement of the tick. Similar paralysis has never been transmitted by the blood of affected animals or by the injection of the intestinal contents of ticks taken from paralyzed animals. Postmortem observations have been reported negative. Demonstration of specific parasites has not been successful. It has been suggested that poison in the salivary glands is the exciting agent. In this country efforts to transmit paralysis by the injection of eggs of wood ticks have not been attempted.

Brown dog ticks reveal many peculiarities. Regendanz and Reichenow [2] in their experiments on this variety found that the eggs contain a venom whose effect is evidently identical with that of tick paralysis. Large amounts of eggs, usually the layings of about fifty ticks, or 150,000 eggs, when thoroughly ground in a small porcelain mortar with physiologic solution of sodium chloride and injected subcutaneously or intraperitoneally, were found to produce weakness in large dogs and paralysis and death in small dogs. Subsequently, the larger dogs, after further injection of tremendous numbers of eggs, acquired paralysis and died. This would seem to indicate a strong resistance to, but a lack of immunity against, tick paralysis. Necropsy disclosed extensive degeneration in all parts of the spinal cord (Marchi staining). Smaller amounts of tick eggs were found to produce paralysis and death in smaller animals, such as rabbits and guinea-pigs. After even smaller injections of eggs, rats and mice were found dead in from one to two days, usually without preliminary paralysis.

Initial symptoms in animals may occur without any incubation immediately after the injection of tick eggs. It seems improbable that any virus or micro-organism is the cause of the paralysis. Introduction of emulsion of eggs into the stomach of animals was tried, but no effect was observed; nor could death in animals be produced by injection of emulsion of larvae. Brown dog tick venom, which is resistant to drying, is not destroyed by alcohol and does not become inactive from high temperatures until heated to 85 C. for fifteen minutes or to 100 C. for one minute. Attenuation of the poison follows Berkefeld N filtration. The venom has only a weak hemolytic action. Its production in the adult female tick takes place simultaneously with the termination of blood sucking and the maturation of the eggs. Neither the salivary nor the head glands contain individually the poison in demonstrable quantities, although the poison is traceable in these glands as well as in the ovaries.

The venom of the brown dog tick, or Rhipicephalus sanguineous, is like the venom of the black widow spider in that it is poisonous and a motor-paralyzing agent for all animals by parenteral administration while it is inactive when given orally. However, the spider venom varies in that it is destroyed by alcohol and by a lower temperature. Spider venom is strongly hemolytic, and immunization is easily obtained.

REPORT OF CASE

The following case history indicates that the onset of tick paralysis may be an irritative lesion of the posterior sensory roots, followed by involvement of the anterior horn cells. Paresthesia, the first complaint, had not disappeared with the onset of the motor paralysis. The paralysis, as was observed in a motion picture taken one-half hour after removal of the tick, is quadriplegia rather than the usually described paraplegia. Another motion picture taken twenty-four hours after removal of the tick showed complete recovery from the paralysis. In this case, as in most all others in children, death from respiratory paralysis would probably have resulted in another two or three days if the engorged tick had not been found and removed.

J. C., a girl, aged 6 years, of Kingston, Idaho, was seen at noon on June 8, 1936. The previous day she had complained of itching and burning fingers and toes but ran around and played as usual. She slept well that night. On the morning of the examination she cried in pain on putting on slippers and "wilted" when attempting to stand. She was carried around the house in the parent's arms because she was unable to walk; she had become afraid even to attempt to take a step lest she might fall. The history was so typical of wood tick paralysis that the scalp was examined first; an engorged tick 1 cm. wide and 1.5 cm. long was found and removed. The child complained of pain on passive movements of the legs. She rubbed the feet together to obtain relief from itching and burning. The patellar reflexes were absent. There was ataxia of all the extremities, more marked in the lower extremities, and the muscular power was so weak that, although the child sat up well, when she stood the body swayed and she required support. She could stand or walk only with the feet widespread.

The child returned for examination the following day. The mother reported that by bedtime the preceding evening she had begun to walk fairly well without support. Now she could again kick accurately and firmly. The reflexes were normal; the grip was strong; the movements of the upper extremities were accurate. She could walk and even run normally.

A complete neurologic examination by Dr. Joseph Lynch one and a half hours after removal of the tick revealed a robust child who walked with an extremely ataxic gait, with the trunk swaying laterally and anteroposteriorly, with a broad base. Examination of her head revealed slow nystagmus with the quick component to the right when she looked to the right and to the left when she looked to the left. The pupils were round and equal and reacted normally to light and in accommodation. Examination of the ocular fundi revealed normal optic disk, the outline of the disks being clear and well defined and not edematous. The retinal vessels were normal; the external ocular muscles were normally innervated; there was no diplopia; gross tests of the visual fields revealed no abnormalities. There was no disturbance of the sensation of smell. The sensation of the face was normal to stimulation by pin prick, cotton wool, heat and cold. There was normal contraction of all the muscles of mastication. The muscles of facial expression were normal and bilaterally equal. The platysma was normally innervated on each side. The tongue protruded in midline. There were no fibrillary twitchings. The uvula was retracted in midline, and there was no disturbance in motor power of the soft palate. The voice was normal, high and low tones being pronounced with equal facility. There was no disturbance of hearing. The tick of a watch was detected at normal and equal distances on each side. The sternocleidomastoid and trapezius muscles reacted normally. Examination of the neck revealed no change in sensation and no disturbance in muscular power of any cervical muscles.

Examination of the upper extremities disclosed an absence of both the biceps and the triceps reflex and a marked reduction of the supinator reflex more noticeable on the right than on the left. Hoffman's sign was absent on each side. There was no change in the upper extremities to stimulation of the skin with pin prick, hot or cold, cotton wool or vibration. Muscle and joint sensations in hands, wrists and elbows were likewise normal. However, the grip was reduced about 50 per cent in both the right and the left hand. The finger to nose test revealed marked ataxia in both hands. There was a lack of between 35 and 50 per cent in resistance to passive motion at the wrists and elbows but no lack of resistance at the shoulders. Examination of the chest revealed normal innervation of the intercostal and the pectoral muscles and normal excursion of the diaphragm. There was no impairment in the muscles of respiration or any sensory changes in the chest.

Examination of the abdomen revealed no sensory changes to any of the previously mentioned stimuli. However, the abdominal reflexes, upper and lower on each side, were absent, as was the epigastric reflex. Test of the lower extremities revealed normal sensation with all modalities, but the knee jerk and the achilles jerk were absent on each side. No pathologic reflexes were present in either extremity. There was marked weakness in the two lower extremities and a reduction of nearly 75 per cent in resistance to passive motion in ankles and knees. Muscle and joint and vibratory sensations were normal in both lower extremities. The Romberg sign was strongly positive. The patient was unable to stand alone even with a broad base and the eyes open. Examination of the muscles of the back and pelvis revealed marked weakening of all muscles of the trunk. When the patient attempted to stand or walk, her trunk swayed as if she was ataxic. The heel to knee test was very poorly performed because of marked ataxia of both lower extremities.

Summary.—Neurologic examination revealed that all the cranial nerves were normal. There were marked motor paralysis, characterized by severe weakness of the muscles, and absence of abdominal reflexes and of tendon reflexes in all the extremities. The lesion was of the lower motor neuron type but not of the peripheral nerve and was probably a lesion attacking the lower motor neuron in the region of the anterior horn cells of the spinal cord.

COMMENT

A rich field of research awaits the full investigation of the possibility of venom in wood tick eggs as the cause of tick paralysis in this country. The ticks taken from paralyzed children under my care have been engorged female ticks. In nature the paralysis develops after days of tick attachment, the time of early formation of the eggs. Human experiments in paralysis with tick attachment are unwise. There are two clinical reports of fatal spotted fever and associated paralysis.

The reason children are more often affected by tick paralysis may be not only that they fail to find and brush off ticks as readily as do exposed adults but that, because of their smaller size, less poison is required to produce the paralysis. In adults it is possible that ticks may attach in hairy regions, feed fully and drop off without producing symptoms. Ticks are often not found during attachment and feeding, as they apparently pour into the bite a local anesthetic and coagulant secretion of the salivary glands.

It is peculiar that the occurrence of wood tick paralysis does not yet correspond to the total geographic distribution of the tick. As has been mentioned, the paralysis has been reported in only five of the thirteen states in which the tick ranges.

Although a large number of eggs from many brown or tropical dog ticks produce a paralyzing venom in laboratory animals, it is notable that no case of tick paralysis in nature following the bite of this species has been reported. The egg venom may be so weak that paralysis in nature cannot result from the bite of a single tick. Is it possible that in wood tick paralysis a single tick produces excessive egg venom early in the formation of eggs and excretes it promptly by the enlarged overactive salivary glands?

It would not be surprising if species other than wood ticks should be found to contribute to tick paralysis in nature in this country. Intriguing it would be to speculate whether tick venom from eggs could be a hormone, neurotoxic to human beings and to animals. We may venture the suggestion that patients with complete tick paralysis with respiratory involvement might be placed in respirators. This has not yet been done.

In spite of the wide range of the different species of ticks in the United States, there is no reason for great alarm, for, although many persons are bitten, relatively few are really afflicted.

SUMMARY

In cases in children clinical evidence indicates that the disease is a mild irritative lesion of the posterior sensory roots and a severe irritative lesion of the anterior horn cells of the cord. The resulting muscular involvement of the extremities is progressive and extensive, with death from respiratory paralysis in cases not properly recognized and treated by removal of the tick. Experimental evidence from another species of tick suggests that the disease is a poison liberated in the tick eggs. With the range of the wood tick extending, and with the possibility that eventually other ticks in this country may produce the paralysis, the subject occasions more pronounced concern. It is recommended that textbooks contain more information on all tick-borne diseases and that pediatric instruction in medical schools include information on tick paralysis.

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END RESULTS IN FRACTURES OF THE SHAFT OF THE FEMUR

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This review deals with a consecutive series of seventy-four cases of fracture of the shaft of the femur, of which 81 per cent have been followed, so that the ultimate anatomic and functional results are known. It presents the results of treatment by numerous surgeons, since, in addition to two chiefs, fifteen assistant surgeons were concerned with the management of these patients. Moreover it is not a series selected to illustrate the results of any one method of treatment for, as will be shown, a variety of methods were employed. The cases were all fractures of the shaft proper; subtrochanteric and supracondylar fractures are not included, as they present distinct problems. Consideration is given only to cases admitted to the hospital within one week of the injury and to those in which the fracture occurred through normal bone. The report of six patients who died in the hospital from associated injuries is omitted, since we are concerned here chiefly with end results. Of the seventy-four patients, twenty-four were over 16 years of age, and in certain respects it is appropriate to separate the adult and juvenile groups.

Read before the Section on Orthopedic Surgery at the Eighty-Eighth Annual Session of the American Medical Association, Atlantic City, N. J., June 9, 1937.

The cases here reported are from the services of the senior author at the Hospital of the University of Pennsylvania 1922-1936 and the Presbyterian Hospital 1934-1936 and, by courtesy, the service of Dr. George P. Muller at the University Hospital 1922-1933.

No single method of treatment has been adhered to, for each case requires treatment according to its individual indications. We have, nevertheless, acquired certain impressions regarding the range of usefulness and also the limitations of the several methods, and these impressions will be briefly discussed. It will be apparent that certain technics now in vogue have not been used. For example, neither the Anderson two pin method nor the Braun frame has been included. While excellent results are being secured by these and other mechanical methods, like results can be obtained by simpler means when fundamental principles are strictly followed. This point should be strongly emphasized in teaching students and interns. The men going out into small communities to handle fractures should be impressed with the ideas, first, that good function is the goal to be achieved and, secondly, that patients can be satisfactorily treated by simple and conservative methods.

THE CRITERIA OF SATISFACTORY REDUCTION

It is apparent in the records of these cases that at the time of admission to the hospital there was often no certainty of opinion as to what method of treatment would be effective. The method instituted at the outset was satisfactory in only 36 per cent of the cases. In the remaining 64 per cent changes were made to improve the position of the fractured fragments. Not uncommonly three or four methods were thus tried. These alterations were time consuming, distressing to the patient and disturbing to the healing process. Probably some of them were unnecessary and certainly many were not beneficial. Correlation of the final position of the fracture fragments with the end results should help to determine the essential criteria of reduction satisfactory for good function, which is our prime aim. Perfect anatomic reposition obviously is an ideal to be sought, but in fractures of the femoral shaft it is often difficult to attain. As a matter of fact, good position—namely, alinement with no more than 15 degrees angulation, apposition of at least one third of the diameter of the bone ends and normal bone length—was obtained in no more than half of the cases. Since the proportion of entirely satisfactory functional results in our series was much higher than this, something short of perfection in anatomic restoration may still be compatible with a good functional result. The practical problem to decide is how much deviation from the ideal is permissible. As might be anticipated, no patients with good reduction, as defined, had residual disability, except the few impaired by stiffness of the knee, which stiffness was due to late treatment and not related to the accuracy of reduction. Displacement without overlap, even though sometimes there was no end to end apposition whatever, likewise was followed by favorable union and function in ten followed cases. Imperfect alinement with angulation up to 30 degrees generally did not interfere with the ultimate outcome. Greater amounts than this may result in actual shortening of the limb and especially if there is a lateral bowing will produce disturbance in gait. Alinement accordingly should be favorable for an assured good result. Abnormality in the length of the bone was the deformity responsible for most of our unsatisfactory results. In seven out of fifteen patients who had shortening at the time of union, a permanent functional disability exists. The essentials of satisfactory reduction appear therefore to be the restoration of accurate length and approximate alinement.

The Prognosis With Shortening.—In this series fifteen cases presenting shortening of the femur at the time of union have been followed for a sufficient period (from one to twelve years) to determine the ultimate results. It is common belief that, whereas any shortening in adults will be permanent, children may be expected to compensate with growth and thus regain equality in the length of the two limbs. Our experience shows that this statement is only partly true. In the adult group two patients with one-half inch overlap in the x-ray films showed no disparity when measured respectively six months and three years after their injuries. Three others, however, had constant and permanent shortening of from one-half to 2 inches. Among the children seven with an overlap of from one-half to 1¼ inches showed complete restitution of length, usually within a year after uniting. One with an original inequality of a full inch has now only a half inch of shortening. The three remaining children have shown no improvement whatever following union with respectively one-half, 1 and 1½ inches of overlap. It is apparent from this that any prediction with respect to the outcome in these cases must be made with reservation.

Osseous Union.—The securing of firm union in fractures of the femoral shaft is not a great problem. The time required is variable and it may be prolonged, but eventual bony union is the rule. Premature removal of apparatus or too early weight bearing must be guarded against. There were five instances of refracture in this series occurring one at four, one at six, two at eight and one as late as eighteen weeks after the original injury. Union will occur, however, even with such marked displacement of the fragments that there is no end to end apposition whatever. This remphasizes the fact that the important points in reduction are length and alinement without too great concern about other displacements. Indeed, the formation of callus may be retarded by repeated attempts to secure accurate replacement.

COMPARISON OF METHODS OF TREATMENT

Traction Methods in General.—Certain fundamental principles must be strictly adhered to with any method of traction, whether skin or skeletal. Any deviation from these fundamentals should be regarded as a failure on the part of the surgeon in charge rather than as a failure of the method itself: 1. The mechanics of the application of the traction must be sound. 2. Traction must be uninterrupted. 3. Sufficient force must be applied to meet the needs of the individual case. In a femur this may be 4 pounds or 40. 4. Constant supervision must insure that the original intentions of the apparatus are being maintained. 5. Traction must be continued until firm union ensues.

Bryant Traction.—The Bryant or Schede method of traction with both legs suspended from an overhead frame is the method that we prefer in children under 7 years of age. It greatly facilitates the nursing and hygiene of these patients, is easily applied and requires little attention. Our results have been good in fourteen cases with three exceptions in which union with shortening occurred. Perhaps in this group of young patients almost any method would give equally good results, but overhead traction is recommended mainly on the basis of the facility of its application and management. It is important that the traction weight be sufficient to elevate the pelvis off the bed and that proportionately greater weight be applied to the injured limb. Care must also be taken to prevent rotation

deformity, and this may be done by affixing a slotted rider to the spreader of the injured side in such a way that any tendency toward rotation is checked by the traction rope affixed to the well leg.

Russell Traction.—We favor this method of traction because of its simplicity. It requires little in the way of special equipment, save for an overhead frame, and may be used in the home as well as in the hospital. There is no interference with nursing care and no danger of sepsis. Moreover, and this one should not overlook in fracture therapy, the patient is very comfortable.

Nonetheless our experience with it has not been as satisfactory as that reported from other clinics. In half of the twenty-two instances in which we used it in children, and in five out of eight adult cases, satisfactory reduction by the Russell method has not been obtained and we turned to other means. In one of these instances, muscle interposition was found to account for the difficulties. Proponents of Russell traction have acknowledged difficulties in dealing with fractures of the lower third of the femoral shaft. Most of our disappointments have been with the involvement of the middle of the bone and only once with the lower portion. In muscular adults with a considerable amount of shortening, no method employing skin traction with adhesive tape can be depended on. In simpler cases presenting moderate displacement, the Russell method can be used with satisfaction. Wherever a brief trial of the Russell method showed satisfactory reduction of the fragments, we have been able to predict good ultimate results. In those cases in which trial is unsuccessful, other methods should be attempted without delay.

Skin Traction with Suspension on Thomas-Pearson Splint.—Simple traction applied to the thigh alone by adhesive tape is seldom adequate for the entire period of treatment. In about one third of our cases it was employed at some time, but largely as an adjunct to other methods. It was used often during the period of shock and was sometimes continued for several days as a temporary dressing. In a few instances a reduction successfully obtained under anesthesia with fluoroscopic control was maintained by skin traction. The only adult case that was satisfactorily managed by skin traction alone was one of a fracture in an amputation stump in which little traction was required.

Skeletal Traction.—For efficiency in securing and maintaining good apposition, skeletal traction is surpassed only by operative reduction and is without the risk of infection at the fracture site entailed by open operation. It does necessitate a certain amount of apparatus, strict asepsis and close supervision. Skeletal traction need not be employed as a routine, for many cases do not require it. On the other hand, if repeated measurement of the limb and roentgenologic checks reveal that the desired reduction is not being obtained, skeletal traction should be employed without further delay.

Skeletal traction was tried in fourteen cases and gave satisfactory results in all except three. In two of these, muscle was found interposed between fragments at operation. The third patient was not operated on but there were clinical and x-ray evidences of separation of the fragments suggestive of soft tissue interposition. Under such circumstances no closed method could produce results. In each of these methods ice tongs, a means we no longer employ, were used. There were no instances of frank osteomyelitis, although in one instance chronic necrosis of bone resulted from a Steinmann nail, and the opening in the skin remained two years after discharge. Necrosis of soft tissue has occurred, generally from improper introduction of the nail or wire, in that undue tension was placed on the skin, but this has not been serious or unduly slow in healing.

Several means of securing skeletal traction are available. While ice tongs were used in some of our earlier cases, they were apt to slip, with injury to soft parts as well as loss of traction. Recently we have used only the Steinmann nail or the Kirschner wire, and the choice between the two is a matter of personal preference and available equipment. The wire needs special apparatus to introduce and to keep taut, but if this is available it affords a very simple and effective means of applying skeletal traction.

Plaster Spica Casts.—These have a very limited field of usefulness in fractures of the femoral shaft. Any fracture that requires continuous traction to overcome shortening or angulation is ill suited for treatment in plaster. On the other hand, fractures without serious displacement, those which remain in good position after manipulation and those in which early callus formation has served to fix the fragments may, under certain circumstances, be satisfactorily treated in a plaster spica which fixes the hip and knee on the affected side. In uncooperative patients this means of fixation may be the only one possible. Fragments may slip even in a cast, and one of the best means of insurance against this is to apply the cast with the limb in a position of muscle equilibrium; namely, with the hip and knee flexed. In our series casts were employed frequently as an adjunct to operative reduction with internal fixation, as well as in the other types of case mentioned. By encasement in plaster the period of hospitalization may be shortened, but continued observation is required. There is a finality about plaster encasement which makes the method dangerous unless adequate supervision is provided. Particular attention must always be paid to securing mobility of the knee at an appropriate time. We have discharged patients in casts only to find that the immobilization was continued far too long, with resulting functional impairment. All six of the cases showing permanent disabling restriction of knee motion were treated by plaster casts. One of these cases occurred in a child, although many claim that prolonged immobilization is not crippling to young patients.

Operative Reduction.—This was performed on eighteen patients in this series. In four of these débridement was done for compound fracture. Excluding these, the incidence of operative intervention in simple fractures was 14 per cent in children and 33 per cent in adults. This we believe to be unnecessarily high. The indication for operation in seven cases was the failure of Russell traction to secure or maintain satisfactory reduction. We now feel that a trial of skeletal traction might well have given equally good results without the risks attendant on operation. Two patients were operated on because of delay in union, and the operations did nothing to hasten its development. Once refracture occurred at five weeks and again closed methods might well have been used. In the remaining four cases, open reduction was the only course possible, once because the slipping of tongs had injured the soft tissues and three times because evidence of muscle interposition foretold failure for any closed method.

The mechanical difficulties of access to a bone surrounded by muscle, as is the shaft of the femur, and the

securing of reduction and adequate internal fixation are always great, and the risk of infection is not negligible. In the experience of this series of cases the results have not justified the procedure. The cases chosen for operation were not necessarily the worst fractures, but the results have been inferior to those with closed methods and complications have been multiplied. Five children are known to have a good result but one child has a stiff knee. Among the adults, three out of seven patients with simple fractures have a good functional result. One had osteomyelitis with a short limb, another developed persistent lymphedema of the leg and now has an inch of shortening and a stiff knee. Two others have disability from impaired knee motion. Surely the seriousness of these complications outweighs the advantages of operation.

This discussion is a survey of the experience of several years and not an attempt to draw final conclusions; yet, were this experience to be repeated, we should probably operate in four cases instead of fourteen, and we would employ skeletal traction much more extensively than in the past.

RESULTS AND CONCLUSIONS

1. The emphasis in fracture therapy should be on restitution of function.

2. In fractures of the femoral shaft, perfect anatomic reduction is not necessary for normal function of the limb.

3. Simple closed methods of treatment will give good results in this fracture, provided fundamental principles are respected.

4. Of the several methods of traction employed, that of adhesive tape on the thigh was least effective in producing satisfactory reduction of the fragments. It had to be displaced by other means in all but 13 per cent of children and 11 per cent of adults. Skeletal traction, on the other hand, proved satisfactory in 67 and 62 per cent respectively. Russell and Bryant traction were each effective in 41 per cent of cases in children, although in adults the Russell traction fulfilled the surgeon's requirements in only 25 per cent of patients.

5. Length and alinement should be obtained to assure an ultimately good result. Shortening of the limb is apt to be permanent even in children.

6. Whereas in this series there were 92 per cent of perfect function results in children, only 64 per cent of adults escaped disability. The disappointing results in the latter are largely due to the permanence of shortening, stiffness of the knee from prolonged immobilization and the unsatisfactory results of operative reduction.

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ABSTRACT OF DISCUSSION

DR. FREDERICK C. KIDNER, Detroit: There are so many reports of fancy surgical methods of reduction of fractures that I think we sometimes lose our sanity. Such a paper as this recalls one to sanity by stating that satisfactory results in a considerable number of fractures of the shaft of the femur can be obtained by simple means. During the war, in England, it was my privilege to be the consultant in orthopedics. On one occasion the American hospital unit installed in a hospital just outside London received a trainload of freshly wounded men from France. I had taught the unit the use of adhesive plaster traction with the Thomas splint and Balkan frame. In the trainload of wounded there were ninety-four compound fractures of the femur. When I visited the hospital after forty-eight hours, the whole ninety-four fractures were satisfactorily reduced, and the greatest shortening was a half inch. This was accomplished with adhesive plaster traction only. On the other hand, in the last bed in this fracture ward was a boy of 16 who had been run over by the ambulance in the hospital yard the night before and received a fracture of the left femur. He had no Balkan frame or Thomas splint but was lying in an old fashioned long DeSault splint. His fracture was sharply angulated and there was 2 inches of shortening. When I asked why he had not been put up as had been the ninety-four battle fractures I was told that one did not treat civilian fractures according to war methods. I think that 95 per cent of the fractures of the shaft of the femur can be treated satisfactorily throughout their whole course by adhesive plaster traction on a Thomas splint, by a man who has not the skill or equipment to use skeleton traction properly. As to operative treatment, it seems to me that the authors had rather hard luck in the number of accidents. It is occasionally necessary to reduce a fracture of the shaft of the femur by an open incision. In a modern, well organized hospital, this procedure should be free from accidents.

DR. P. H. SCARDINO, Houston, Texas: Since a great number of fractures are being treated by the general surgeon and the practitioner, it is the master surgeons who have tried to simplify the methods used to obtain the best functional results and make them as fool proof as possible. Every effort should be made in the reduction of fractures of the long bones, especially in the shaft of the femur, to use some of the so-called closed methods, the operator using the method with which he is the most capable. I am inclined to use the method that seems to be best adapted to the individual case. With either open or closed reduction, traction is the prime requisite, of which we have the choice of (1) manual, (2) adhesive and (3) skeletal. In the hands of a master the manual method can sometimes be used in an irregular transverse fracture, but it is difficult to hold the reduction in a plaster spica. Adhesive traction is no longer tenable because of its cumbersome overhead apparatus, ropes, pulleys and weights together with its daily checking and reraying. Skeletal traction is by far the most acceptable. The methods of obtaining skeletal traction are numerous: the Roger Anderson or one of its many modifications is the most satisfactory. The two Steinman pins or Kirschner wire (claimed by Putti, Foster et al.); the Bryant or Schede method of traction for children, and the Russell traction may be used. In my hands the Roger Anderson anatomic splint method has proved most satisfactory. Failure to obtain a proper and sufficient reduction should not permit the surgeon to wait too long before using some method of open reduction. Here the procedure may be admirably facilitated, in the absence of a fracture table, by the preliminary application of the Roger Anderson well leg traction splint, by which shortening is easily overcome and alinement is facilitated with use of pins through fragments or any of the well known methods. All internal fixation must be preceded by careful reduction, and correct alinement maintained by sufficient and adequate external splinting. The Anderson well leg apparatus is excellent when used in place of the Hawley table in open reduction and may be left in situ and the body cast added. The splint helps to keep the alinement, and constant traction prevents breakage of the internal fixation. It should lend itself admirably in bone graft for cases of nonunion. First aid in fractures is usually rendered by the general practitioner and often followed by bad end results unless he has made a special study and has had wide experience in fracture work. Too much stress is placed on the x-ray examination and too little on the physical examination in suspected fractures. The x-rays should be used as a check up on a diagnosis, and the end results sought should be good functional ones rather than x-ray perfection. The master surgeons should strive to give us simplification and not standardization of treatment of fractures.

DR. WILLIS C. CAMPBELL, Memphis, Tenn.: In treatment of fractures of the shaft of the femur I see no reason why the same principles should not be employed as in fractures of other long bones. In 1924 I reported a method of treatment particularly for transverse fractures of the shaft of the femur: by this method at least 75 per cent of transverse fractures of the shaft can be manually reduced and maintained by a plaster cast. Instead of obtaining reduction entirely by traction, the fragments are angulated under slight traction until the ends of the bone impinge and can be locked, after which the thigh is gradually

straightened until normal anteroposterior and lateral alinement is obtained. A double spica cast is applied with the knee and hip partially flexed. Roentgenograms should be made at the end of one week and three weeks to assure maintenance of position in the cast. If there is some doubt of maintaining end to end engagement, a Kirschner wire is inserted through the condyles of the femur and incorporated in the cast. Then, if displacement occurs, the anterior half of the cast is removed and skeletal traction applied. This method of treatment enables a patient to conserve his finances, as prolonged hospitalization is unnecessary. After ten days the patient is dismissed, to return at variable intervals of from three to four weeks and from six to eight weeks respectively for x-ray check up and removal of the cast. No untoward complications have been noted, as stiffness of the knee, and as a whole the results have been most satisfactory. In children there is practically no shortening. Of 153 cases treated by this method up to 1924, only 5 per cent in adults and 1.8 per cent in children had poor results (shortening over 1 inch or excessive deformity).

AIR EMBOLISM VERSUS PLEURAL REFLEX AS THE CAUSE OF PLEURAL SHOCK

THE FRANK BILLINGS LECTURE

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In accepting the invitation to deliver the Frank Billings lecture, I do so with humility and deep appreciation. The honor is the more highly valued because, in an association of over thirty years with Dr. Billings, I owe so much to the influence of his teaching, his example and his inspiring personality.

In all operative procedures involving the pleural cavity, whether pneumothorax therapy, draining an empyema, the withdrawal of fluid by means of an aspirating needle or merely an exploratory thoracentesis, there lurks the danger of so-called pleural shock. This may take the form of faintness, or at times loss of consciousness with a pulse that becomes weaker and weaker until it can no longer be detected by the finger. Rarely convulsions occur and death. When the patient recovers, there may be a transitory hemiplegia or weakness on one side.

It is my purpose in this paper to consider the explanation of this syncope and perhaps to clarify the physiologic mechanism responsible for its occurrence.

INCIDENCE

For many decades clinicians have described these cases of syncope, often fatal, which occur during thoracentesis. When postmortem examinations were made, rarely emboli or thrombi were found in the pulmonary or coronary arteries and even more rarely in the cerebral arteries. Air embolism was sometimes considered to be a causal factor, as in Janeway's [1] report of syncope following irrigation of the pleural cavity with hydrogen peroxide. However, as one reviews the literature one is impressed with the failure of the pathologist to discover (in the great majority of casualties) any anatomic lesions that would explain the cause of death.

Leichtenstern [2] collected twenty-four fatal accidents: four patients died suddenly during thoracentesis; fifteen died a few minutes after operation; five died during irrigation of the pleural cavity. Some of these patients had convulsions.

Weill [3] also described convulsions during irrigation of the chest.

Russell [4] observed three deaths during exploratory puncture.

Sears [5] relates a number of casualties that occurred during thoracentesis, and he emphasizes the danger of lung puncture pneumothorax.

Prendergast [6] reports two cases in which death occurred while exploratory puncture following pneumonia was being performed.

The older writers thought that if cerebral embolism could be excluded the chief factors in producing death in these cases were anemia of the heart or brain, sudden heart failure or some unexplained reflex action of the circulatory centers excited by irritation of the lung or pleura.

Fresh interest in the subject has been stimulated by the general use of pneumothorax therapy. Forlanini [7] has seen twelve cases of syncope in 10,000 punctures on 134 patients treated by pneumothorax—all serious, but all with final recovery. Sachs [8] encountered twenty-two instances in 1,122 patients thus treated; Sangmann,[9] only two instances in 5,500 injections. Matz [10] encountered pleural shock eighteen times in 588 treatments; Bruns,[11] sixteen times in giving 12,700 injections, with seven deaths. Cocke [12] describes four such accidents in his experience of more than 4,000 air injections. Andrews [13] reports six instances of shock in 8,528 needle punctures of the chest; in 8,085 of these air was injected. One patient died.

MECHANISM OF SHOCK

Two hypotheses have been presented to explain this phenomenon of syncope: air embolism, and shock from a pleural reflex. In recent years the theory of air embolism has gained adherents, especially among the surgeons.

CLINICAL EVIDENCE OF AIR EMBOLISM

Let us consider the evidence that supports the theory of air embolism—clinical and experimental:

Clinical.—A number of observations have been recorded in which the aspiration of air into the pulmonary vessels has been accompanied by symptoms of shock. Thus Wever,[14] while cauterizing a bronchus, noted a hissing sound of air with the collapse of the patient. Other observers have described the presence of air bubbles in the retinal arteries, simultaneously with syncope, in the course of surgical operation on the lungs. Again, air bubbles have been discovered post mortem in the coronary arteries in a patient who died suddenly during surgical drainage of a pulmonary abscess. It should be stated that most of this evidence of air in the arteries has been found in association with operations on the lungs.

Experimental.—By injecting air directly into the left side of the heart or aorta, convulsions, paralysis and death have been produced.

The Eighth Frank Billings Lecture, read before the Section on Practice of Medicine at the Eighty-Eighth Annual Session of the American Medical Association, Atlantic City, N. J., June 9, 1937.

1. Janeway, E. G.: Tr. A. Am. Physicians **13**: 87, 1898.
2. Leichtenstern, Otto: Deutsches Arch. f. klin. Med. **25**: 325, 1879.
3. Weill: Rev. de méd. **7**: 33, 1887.
4. Russell: St. Thomas Hosp. Rep. **28**: 465, 1899.
5. Sears: Tr. A. Am. Physicians **21**: 177, 1906.
6. Prendergast, D'Arcy: Canad. M. A. J. **23**: 54 (July) 1930.
7. Forlanini: Gaz. d. osp., November 1882.
8. Sachs, cited by Cocke.[12]
9. Sangmann: Beitr. z. Klin. d. Tuberk. **31**: 571, 1914.
10. Matz, P. B.: Am. J. M. Sc. **176**: 87 (July) 1928.
11. Bruns, E. H.: Colorado Med. **27**: 237 (July) 1930.
12. Cocke, C. H.: Am. Rev. Tuberc. **24**: 545 (Nov.) 1931.
13. Andrews, C. H.: Am. Rev. Tuberc. **23**: 435 (April) 1931.
14. Wever: Beitr. z. Klin. d. Tuberk. **31**: 159, 1913.

Rukstinat and LeCount forced air into the lungs under high pressures and caused death in guinea-pigs. Postmortem examination under water revealed some pneumothorax: air in the aorta, carotid, bronchial and iliac arteries, and frothy blood in all the heart chambers. Always they found air in the coronary arteries, and to this tamponade the authors attributed the fatal outcome.

It is well known that considerable quantities of air can be introduced into the systemic veins without causing any circulatory disturbance. Air thus introduced travels to the lungs, which to a great degree prevent the further passage to the left side of the heart. However, if air is injected into the pulmonic veins, it is logical to assume that it may enter the coronary or cerebral arteries. It is argued that in pneumothorax therapy the needle may pierce the lung and that air may be forced into the pulmonary veins. Likewise, it is reasoned that in surgical manipulation of the lungs air may be sucked into the pulmonary veins.

OBJECTIONS TO AIR EMBOLISM THEORY

Without denying that air embolism does occur and that it may produce syncope or even death, certain facts do not support this explanation of the ordinary accidents:

1. The syncope phenomenon is not encountered sufficiently often in procedures that involve the injection of air; viz., pneumothorax therapy. Considering the enormous number of such injections, the incidence of syncope is small.

2. Syncope occurs most often in simple exploratory puncture where no air is introduced. Chabaud,[15] in a review of 114 cases of pleural shock, states that two thirds of the accidents were observed during exploratory or aspiratory puncture, less than one third during lavage and only a small number during pneumothorax therapy.

3. Numerous individuals who have succumbed to pleural shock have shown (post mortem) no evidence whatever of air embolism in the brain or coronary arteries.

THE PLEURAL REFLEX

Let us now consider the evidence relative to a pleural reflex as the cause of syncope. In 1907 Dr. Dean Lewis and I had an experience that aroused our interest in this subject. A clinic patient with an acute pleural effusion was prepared for drainage. As the needle entered the pleural cavity and only a few cubic centimeters of serum had been withdrawn, the patient went into collapse. Pallor, weak pulse, unconsciousness and death ensued. At the necropsy no penetration of the lung could be found and no air was present in the heart or brain. Dr. Lewis and I[16] then undertook some experiments on animals and obtained the following results:

1. Irritation of the visceral pleura of healthy dogs by mechanical, thermal and electrical means and by certain chemicals produces little or no effect on the blood pressure, except over the roots of the lungs, where mechanical and electrical excitations produce long strokes of vagal type.

2. In dogs with pleurisy induced by injections of turpentine or of oil contaminated with bacteria, excitation of the inflamed visceral pleura by mechanical and chemical irritants gives varying results. In some cases there is no marked change in blood pressure; in others there is a considerable fall in pressure which may even be fatal.

3. These reflexes conform to two types which, as a rule, occur singly but which may be combined: (*a*) The cardio-inhibitory type, in which the heart is slowed and the pulse tracings make violent excursions with a great range between systolic and diastolic pressure. Respirations also are usually slowed and may be inhibited. This type of reflex when it occurs alone is seldom fatal. (*b*) The vasomotor type, in which the pulse tracings show a steady rapid decline of pressure without a great difference in systolic and diastolic pressure; frequently this type terminates in death. Respirations as a rule are shallow and may be rapid. In fatal cases the blood vessels of the abdominal viscera are much engorged from acute vasodilatation. The brain shows no evidence of embolism or hemorrhage.

4. The cardio-inhibitory reflex is central, because it is prevented or stopped by cutting both vagus nerves in the neck. Atropine paralyzes the cardio-inhibitory fibers and destroys the reflex.

5. The vasomotor (dilator) reflex may be central or peripheral. If central, the afferent impulses reach the medulla by way of the thoracic sympathetic, the white rami and the cord, and not by the vagosympathetic cord. This is proved by the failure of section of the vagosympathetic cord to alter or abolish the reflex. If peripheral, the reflex goes from the pulmonary fibers to the pulmonary plexus, and thence to the thoracic sympathetic nerves and downward through the splanchnics to the celiac and other plexuses in the abdomen. This reflex is more direct than the central form but seems to me inconsistent with the views generally accepted as to the course and direction of impulses in the sympathetic nerves. Epinephrine is the physiologic antagonist to the vasodilator reflex and is often life saving.

6. These types of reflexes occur also in man during operative procedures on the inflamed pleura. The cardio-inhibitory type is manifested by a slow intermittent pulse, with a great difference between systolic and diastolic pressures; the vasomotor type, by a steady fall in blood pressure, with no marked difference in systolic and diastolic pressures, and by a pulse that grows steadily weaker until it cannot be felt.

OTHER EXPERIMENTS

Schlaepfer[17] failed to obtain any circulatory reflexes by applying various forms of irritants to the pleura of normal animals and concluded that the shock observed in human beings could not originate in the pleura. His results were similar to those in our own experiments related in the previous paragraphs, but his conclusions were quite different. We also found that the normal pleura gives no such circulatory response to irritation. To make the animal experiment resemble the clinical picture, however, we repeated the experiments after producing an acute pleurisy. We found that the inflamed pleura often gives such a circulatory response, similar to that observed in man. Several times during an aspiration of pleural effusion in human beings I have purposely irritated the visceral pleura with the end of the trocar and have observed a significant fall in blood pressure.

COMMENT

We are now in a better position to determine the mechanism of pleural shock. Granted that the injection of air under pressure in the pulmonic veins may cause symptoms of syncope and convulsions, we find confirmation of this hypothesis in very few necropsies.

15. Chabaud: Rev. tuberc. **7**: 742, 1926.
16. Capps, J. A., and Lewis, Dean: Am. J. M. Sc. **134**: 868, 1907.
17. Schlaepfer, K.: Bull. Johns Hopkins Hosp. **31**: 321 (Sept.) 1922.

Furthermore, we should expect air embolism to be relatively common in pneumothorax therapy, in which air is forced into the pleural cavity under pressure. Such is not the fact, as witness Cocke's experience of only four such accidents in more than 4,000 air injections. On the contrary, we find that pleural shock is most commonly encountered in simple thoracentesis for exploration or aspiration, when little or no air is introduced into the cavity. No doubt this is explained by the fact that exploratory thoracentesis is usually performed in the presence of an active pleuritis, which is sensitive to vascular reflexes. In the chronic tuberculous patients treated by pneumothorax, the pleura is not often acutely inflamed and, therefore, is less subject to reflex symptoms.

Formerly there was much skepticism concerning the physiologic basis for a pleural reflex with dangerous manifestations. The understanding of this phenomenon is illuminated by the analogous vasovagal reflex induced by pressure on the carotid sinus in certain sensitive individuals.[18] The symptoms arising from these two locations, carotid sinus and pleura, are almost identical; viz., fainting, slow pulse, fall in blood pressure, often unconsciousness and convulsions. The mechanism involved apparently is the same, viz., vagal, slowing the pulse; sympathetic, lowering the blood pressure.

Another analogy between pleural shock and carotid sinus syncope is that both are decidedly exaggerated by the upright position.

SUMMARY

1. The experimental evidence supporting the theory of air embolism is based on the effects of direct introduction of air under pressure into the lungs, heart or carotid arteries.

2. The clinical observations in favor of air embolism are chiefly concerned with operations on the lung with exposure of large veins.

3. Necropsy reports of fatal cases occurring after thoracentesis have rarely, if ever, revealed any signs of air embolism.

4. If we accept the hypothesis of air embolism, we would expect syncope to take place most frequently in procedures requiring the injection of air; whereas, actually, the incidence of syncope is relatively infrequent in pneumotherapy.

5. Clinically the majority of instances of pleural shock are encountered in simple thoracentesis in which no air is introduced.

6. In experimental animals we have succeeded in producing by irritation of the inflamed pleura the syndrome of syncope and a slow pulse, a pulse of low pressure or both. In man, identical results have been obtained by intentional irritation of the inflamed pleura.

7. Attention is called to the parallelism of the pulse changes seen with pressure on the carotid sinus of sensitive individuals and the pulse changes observed with irritation of the inflamed pleura in sensitive individuals.

8. Considering the sound physiologic basis for a depressor circulatory reflex from irritation of the inflamed pleura, it seems to me that a true pleural reflex is the logical explanation for the great majority of such accidents; viz., syncope and collapse. In exceptional cases in which air is forced directly into the lung or the lung is subjected to surgical operations, the possibility of air embolism must be recognized.

122 South Michigan Avenue.

18. Weiss, Soma; Capps, R. B.; Ferris, E. B., Jr., and Munroe, Donald: Syncope and Convulsions Due to a Hyperactive Carotid Sinus Reflex, Arch. Int. Med. **58**: 407, 1936.

ANAPHYLAXIS DURING ETHER ANESTHESIA

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For a number of years it has been a regular procedure in the surgical department of the Cincinnati General Hospital in accident cases to administer prophylactic antitoxic serum while emergency operative procedures are being carried out with the patient under ether anesthesia. This has been done without previous skin testing for sensitization to foreign serums and without fear of anaphylactic reaction in accordance with the belief that anaphylactic reaction cannot occur in a patient under ether anesthesia. Recently, this procedure was carried out on a patient whose case history is herewith presented.

On Nov. 29, 1936, at 3 a. m., a colored man, aged 26, was brought to the receiving ward with a gunshot wound in the abdomen incurred one-half hour prior to admission. His general condition was considered good: the temperature was 98 F. and the blood pressure 100 systolic and 60 diastolic. In the right lower quadrant of the abdomen a bullet wound was noted with the point of exit over the right trochanter. It was believed that the abdominal cavity had been penetrated.

Nitrous oxide-oxygen anesthesia was begun at 4:55 a. m., and open drop ether anesthesia was substituted shortly thereafter. An exploratory laparotomy was started at 5:05. Four penetrating wounds of the ileum were found. A blood transfusion was begun, although the condition of the patient was good. It was decided immediately to do an end to end anastomosis of the intestine, and about 6 inches of the ileum, which included all perforations, was resected. This operation was completed at 6:15 a. m. The general condition of the patient following the procedure was pronounced good by the anesthetist. The blood pressure was recorded at 100 systolic and 80 diastolic. Approximately 350 cc. of whole citrated blood had been given, with no evidence of reaction. Fifteen hundred units of antitetanus serum was now administered subcutaneously. A reaction took place immediately. The pulse became imperceptible and the respirations ceased. The patient became cyanotic, and despite emergency stimulative therapy he died on the operating table within three minutes after the administration of the serum. Complete exploration of the abdomen was done, and except for a moderately sized retroperitoneal hematoma no further evidence of injury could be discovered.

Postmortem examination confirmed the abdominal condition recorded at operation. Examination of the thorax revealed marked edema and congestion of the lungs. The heart and other viscera, however, presented no remarkable changes.

Since it was considered that the patient had died of an anaphylactic reaction taking place while he was under ether anesthesia, an attempt was made to determine the basis of the belief that anesthesia inhibits such reactions. In addition, a questionnaire was forwarded to the larger clinics in the country asking for an opinion on this subject and information as to the practices followed. The questionnaire was completely filled out and returned to us by eight surgical clinics. Briefly analyzed, the answers given were as follows: Fifty per cent of the writers maintained definitely that anaphylactic reaction cannot occur during ether anesthesia. Consequently, in their clinics (Johns Hopkins, Duke, Tulane, Louisiana) serum is regularly administered to patients under anesthesia without fear of anaphylactic response. Twenty-five per cent maintained the opposite view (the Massachusetts General Hospital, and the Barnes Hospital, St. Louis) and one of these reported the occurrence of anaphylactic reaction in a

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patient under ether anesthesia. The remaining 25 per cent (the New York Hospital, and the Strong Memorial Hospital, Rochester, N. Y.) replied that they had had no experience on the subject and were therefore undecided whether anaphylaxis could take place under ether anesthesia.

The concept that anesthesia inhibits or suppresses anaphylaxis apparently originated with Besredka.[1] As early as 1907 he reported that the symptoms of anaphylactic reaction could be suppressed by the administration of ether to the sensitized guinea-pig. He has maintained even in his most recent publications that anaphylactic reaction is suppressed by various anesthetics (ether, chloroform, alcohol, ethyl chloride).

Bronfenbrenner [2] developed the theory that the action of anesthetics which protect the animal from anaphylaxis is the setting free of antitryptic ferment by the anesthetic agent. This enzyme retards or neutralizes proteolytic ferments liberated on the introduction of antigen into the sensitized animal. Anaphylactic reaction, thus, cannot take place except to a limited degree and perhaps over a greater period of time.

In the meantime numerous workers in the field of anaphylaxis, which was rapidly developing, were producing and recording anaphylactic reactions in sensitized animals under anesthesia. Voegtlin and Bernheim [3] studied the anaphylactic reaction of sensitized and dehepatized dogs anesthetized with ether. Auer [4] reported the occurrence of fatal anaphylactic shock in sensitized rabbits under ether anesthesia. Schultz [5] described the anaphylactic response of various organs of rabbits, dogs and guinea-pigs under ether anesthesia. Simonds [6] produced anaphylactic reactions in dogs anesthetized with ether and made kymographic records of the induced shock. Weil,[7] aware of the previous view on the subject, declared that anaphylactic reaction in dogs is not in the least degree inhibited by ether anesthesia. This open declaration stands in direct opposition to Besredka's contention, whereas the previous experimenters had produced anaphylaxis in anesthetized animals apparently without commenting on the fact that anesthesia might possibly inhibit or suppress the phenomenon they were laboring to produce.

Kopazewski and the Roffos [8] stated that they were able to protect guinea-pigs sensitized with horse serum from anaphylactic reaction by the intravenous administration of ether or chloroform. They advanced the theory that anaphylaxis is suppressed by the alteration in surface tension of the blood serum produced by the anesthetic and the resultant nonflocculation of the anaphylatoxin.

However, contributors to the field of anaphylaxis continued to report the occurrence of anaphylactic shock in anesthetized animals. Prominent among this group, and the animals used by them, were Manwaring and his associates,[9] Webb,[10] and Dragstedt and his associates,[11] dogs; Hanzlik and Stockton,[12] pigeons; Bally,[13] rabbits, and Krafka, McCrae and Vogt,[14] cats.

In 1934 Scimone [15] reported a series of observations made on rabbits. He concluded that ether anesthesia exercises a protective action against the occurrence of anaphylactic shock in these animals. Ether anesthesia was administered during both the sensitizing and the shocking procedures.

Dragstedt,[16] a vigorous opponent of the theory of desensitization by anesthesia, in a communication to THE JOURNAL in July 1935 concluded with the following statement: "However, the experiments on laboratory animals . . . together with the evidence that anaphylactic shock is largely a histamine intoxication (Gebauer-Fuelnegg and Dragstedt, *Am. J. Physiol.* **102:** 520 [Nov.] 1932) and that ether anesthesia (Dale, *Brit. J. Exper. Path.* **1:** 103 [April] 1920) increases the susceptibility to histamine not only lend no support to the idea that anesthesia would diminish anaphylactic shock but actually indicates the reverse."

Most recently, Re,[17] following the work of his fellow Italian Scimone, but working with a different species of animal (guinea-pig), has reaffirmed Scimone's conclusion that ether anesthesia exercises a protective action against anaphylaxis whether administered during the sensitization or the shocking procedure. He referred the antianaphylactic action of narcosis "to the inhibition of certain functional relationships of the nervous system with the biologic and immunitary structure of the blood."

EXPERIMENTAL WORK

The purpose of the experimental procedures undertaken was to produce anaphylactic reaction in sensitized animals under ether anesthesia. Three species of animals, viz., dogs, rabbits and guinea-pigs, were included in the experiment because of the known variation in the anaphylactic response of these animals. Series of the animals were sensitized to foreign serum (sheep's) according to the procedures outlined by Gay and his associates.[18] Five-tenths cubic centimeter of antigen per kilogram of body weight was administered to the dogs both subcutaneously and intravenously for three doses at daily intervals. Skin tests done prior to the sensitization procedure gave negative results. After the sensitization period (from three to four weeks), intradermal skin tests showed definite positive reactions, as evidenced by erythema and edema about the site of the injection. Sensitization of the rabbits was produced by the administration of 3 cc. of the antigen subcutaneously for eight injections at daily intervals. Skin tests of these animals proved unsatisfactory. An incubation period of fourteen days was found adequate. The guinea-pigs were given 0.5 cc. subcutaneously and intracardially each for only one dose. An incubation period of twenty days was allowed. Skin tests of the animals of this series likewise proved unsatisfactory.

After the sensitization or incubation period the sensitized animals were anesthetized by the open drop ether method (no previous medication being given), and

1. Besredka, Alexandre: Ann. Inst. Pasteur **21:** 950, 1907; Anaphylaxis and Antianaphylaxis, London. William Heinemann, Ltd., 1919; Le choc anaphylactique et le principe de la désensibilisation, Paris, Masson & Cie, 1930.
2. Bronfenbrenner, Jaques: J. Lab. & Clin. Med. **1:** 573 (May) 1916.
3. Voegtlin, Carl, and Bernheim, B. M.: J. Pharmacol. & Exper. Therap. **2:** 507, 1911; Proc. Soc. Exper. Biol. & Med. **12:** 110, 1914-1915.
4. Auer, J.: J. Exper. Med. **14:** 476, 1911.
5. Schultz, W. H.: Bull. 80, U. S. P. H. S., January 1912.
6. Simonds, J. P.: J. Infect. Dis. **19:** 746 (Dec.) 1916.
7. Weil, Richard: J. Immunol. **2:** 525 (Oct.) 1917.
8. Kopazewski, W.; Roffo, A. H., and Roffo, H. L.: Anesthesia and Anaphylaxis, Compt. rend. Acad. d. Sc. **23:** 1409, 1920.
9. Manwaring, W. H.; French, W. O., and Brill, S.: J. Immunol. **8:** 211 (May) 1923.
10. Webb, R. A.: J. Path. & Bact. **27:** 79 (Jan.) 1924.
11. Dragstedt, C. A.; Gebauer-Fuelnegg, E., and Mullenix, R. B.: Proc. Soc. Exper. Biol. & Med. **29:** 1084 (June) 1932.
12. Hanzlik, P. J., and Stockton, A. B.: J. Immunol. **13:** 395 (June) 1927.
13. Bally, L. H.: J. Immunol. **17:** 223 (Sept.) 1929.
14. Krafka, Joseph, Jr.; McCrea, F. D., and Vogt, E.: J. Physiol. **68:** 292 (Nov.) 1929.
15. Scimone, Ignazio: Anaphylaxis and Anesthesia, Minerva med. **2:** 845 (Dec. 15) 1934.
16. Dragstedt, C. A.: Anaphylaxis and Ether, J. A. M. A. **105:** 300 (July 27) 1935.
17. Re, Carlo: Gior. di batteriol. immunol. **16:** 458 (March) 1936.
18. Gay, Frederick P., and others: Agents of Disease and Host Resistance, Springfield, Ill., Charles C. Thomas, 1935.

anesthesia was maintained for a minimum period of fifteen minutes at moderate depth prior to injection of the antigen. A cannula was placed in the femoral artery of the dogs with aseptic technic and the blood pressure recorded on a kymograph. With the animal under careful observation, the shocking dose of the antigen as recommended by Gay and his associates was administered intravenously. The reaction of each animal was closely studied. Anesthesia was maintained for at least fifteen minutes after the administration of the antigen in the animals in which the signs of reaction subsided quickly. In the remaining surviving animals anesthesia was maintained for one-half hour. On reaction from etherization, all the animals exhibited signs and symptoms of having undergone some degree of anaphylactic shock. During this period of recovery the manifestations noted were great weakness and marked hypotonia of the skeletal musculature, vomiting, marked loss of control of the sphincters, and convulsions.

The animals recovering from the anaphylactic reaction were permitted to rest for a short period (minimum, six days) to regain their sensitivity. The shocking procedure was then repeated and the animals observed as indicated. The intravenous dose of antigen was now increased, and this factor was probably responsible for the occurrence of fatal anaphylactic reactions on this occasion.

The normal anaphylactic response was demonstrated by the intravenous administration of the antigen to animals of each series without ether anesthesia. An essentially identical syndrome was observed (fall of blood pressure with marked rapidity and irregularity of the pulse and respiratory difficulties with dyspnea and cyanosis). Fatal reactions during ether anesthesia occurred in 50 per cent of the dogs (three of six dogs),

Procedures Used to Prove Nontoxicity of the Serum Antigen

Animal	Anesthetic	Sheep's Serum	How Given	Reaction
Dog 543	Ether	60 cc.	Intravenously	None
Dog 568	None	60 cc.	Intravenously	None
Dog 607	Ether	40 cc.	Intravenously	None
Dog 623	None	40 cc.	Intravenously	None
Dog 643	Ether	40 cc.	Intravenously	None
Dog 644	None	40 cc.	Intravenously	None
Guinea-pig 10	Ether	10 cc.	Intracardially	None
Guinea-pig 11	None	10 cc.	Intracardially	None
Guinea-pig 12	Ether	5 cc.	Intracardially	None
Guinea-pig 13	None	5 cc.	Intracardially	None
Guinea-pig 14	Ether	10 cc.	Intracardially	None
Guinea-pig 15	None	10 cc.	Intracardially	None
Rabbit 7	Ether	10 cc.	Intravenously	None
Rabbit 8	None	10 cc.	Intravenously	None
Rabbit 9	Ether	10 cc.	Intravenously	None
Rabbit 10	None	10 cc.	Intravenously	None
Rabbit 11	Ether	10 cc.	Intravenously	None
Rabbit 12	None	10 cc.	Intravenously	None

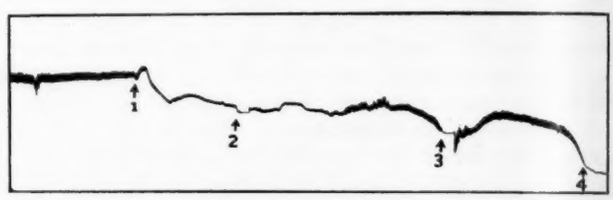
in 100 per cent of the guinea-pigs (five of five guinea-pigs) and in 100 per cent of the rabbits (five of five rabbits). A less violent but nevertheless definite anaphylactic reaction was noted in the surviving dogs.

Postmortem examination of the animals that died of anaphylactic reaction revealed the characteristic changes of anaphylaxis in the individual animals. The guinea-pigs exhibited marked emphysema of the lungs, which constituted the only remarkable change in this species. There was no evidence of trauma to the heart in any of the animals as a result of the intracardiac administration of the antigen. Engorgement of the right side of the heart was noted in the rabbits, while in the dogs interstitial hemorrhage and marked congestion were observed throughout the gastro-enteric tract.

The nontoxicity of the serum antigen was proved by the intravenous administration of the material to nonsensitized animals. The quantity given was generally at least twice the maximum shocking dose given the sensitized animals. In addition, this procedure was carried out with animals under ether anesthesia and without anesthesia. No reaction was noted. The procedure is indicated in the accompanying table.

CONCLUSIONS

A review of the literature of anaphylaxis amply provides one with records of anaphylactic reactions occurring during ether anesthesia. This is particularly true in the case of the experimental animal. However,



Typical kymographic tracing of the blood pressure of a dog under ether anesthesia during anaphylactic reaction. The figure 1 indicates the point at which the antigen (30 cc.) was given intravenously; 2, an intentional break in the tracing for administration of artificial respiration; 3, a second break for artificial respiration, and 4, the death of the animal. Two hours elapsed between administration of the antigen and death. Administration of the anesthetic was discontinued after one-half hour.

probable instances of anaphylaxis in man during ether anesthesia have been observed at the Cincinnati General Hospital and at one other clinic.

Laboratory experimental evidence, as supplied by three species of animals, is in favor of the conclusion that anaphylaxis does take place during ether anesthesia. I do not believe that anaphylaxis with the subjects under ether anesthesia is inhibited to any degree, although this question is debatable. Since at the present time sensitivity cannot be quantitatively measured, the yard stick by which this question might be answered is not available. Until the degree of sensitivity is measurable, the absolute value, if any, of ether anesthesia as a desensitizing agent cannot be determined.

However, since the precept as originally laid down by Besredka that ether anesthesia protects against anaphylactic reaction is maintained by many clinics and since a case in which a fatal anaphylactic reaction is believed to have taken place can be cited, it is reasonable to state that ether anesthesia is valueless as a desensitizing agent. Certainly the practice of administering antitoxic serum to patients under ether anesthesia with the expectation that the anesthetic will protect the patient (if he is sensitive to the foreign serum) from anaphylactic reaction should be discontinued.

What Havoc We Make of Our Chances.—In the wards, where quiet and order reign, he has further opportunities for insight, and for more deliberate observation. He learns, with higher exactness, to trust and to distrust himself to be slow to find fault with other men and quick to help them: he becomes acquainted with heavy responsibility, with the full bitterness of a bad mistake, the full delight of pulling people out of death's way. He begins to be able to read characters, and to see, by the scars on the lives allotted to his care, what havoc we make of our chances.—Paget, Stephen: Confessio Medici, New York, Macmillan Company, 1931.

THE OCCURRENCE OF RENAL CALCULI AND THEIR POSSIBLE RELATION TO DIET

AS ILLUSTRATED IN THE SOUTH AFRICAN NEGRO

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For many years calculous disease of the urinary tract has been looked on as a surgical problem. Since the advent of aseptic surgery and the invention of the modern cystoscope, other methods of relief have hardly been considered.

The many failures to correct the disease surgically and the frequency of recurrence after surgical removal of the stone have demanded a more thorough investigation into cause and effect. From time to time many theories have naturally been advanced regarding the formation of urinary calculi. In the light of recent observations on this matter I will interpret my observations on the huge biologic experiment that is being enacted at present in the Union of South Africa.

STASIS

As early as 1914 Fowler [1] described ureteral stricture and the subsequent urinary stasis as an etiologic factor in the formation of kidney stones. In 1924 Hunner [2] emphasized this with tremendous force in the description of a patient with recurrent renal calculi:

> A woman, aged 36, seen in April 1917, had a calculus in her lower right ureter, which was passed after several ureteral dilations. She was seen again in January 1922 with a normal uninfected left kidney and extensive calculous pyonephrosis on the right side, for which a right nephrectomy was done. In August 1922 she was readmitted, this time with calculous anuria. The calculi were removed, and the patient went home well, only to return three months later (November 22) with another attack of calculous anuria. The new calculus was removed, and a nephrostomy was done. She was discharged a month after the operation with a nephrostomy tube but no calculus. When she arrived home the tube was removed, with the result that she had to return to the hospital three weeks after her discharge (Jan. 13, 1923), two more calculi having developed in her only remaining kidney. One was causing a partial obstruction. These were removed January 15. After this operation she was not allowed out of the hospital before her ureter had been thoroughly dilated.

Recently I spoke to Dr. Hunner about this patient, only to find that she still comes in for periodic ureteral dilation and, after fourteen years, is still free from further recurrence of the calculi. A case report such as this must convince even the most skeptical of the importance of ureteral stricture and stasis in the occurrence and recurrence of renal calculi.

INFECTION

Infection has always played a leading rôle. That it actually has been an important part was demonstrated in 1922 by Rosenow and Meisser.[3] By embedding streptococci isolated from a stone-forming patient into the socket of a recently extracted dog's tooth, they were able in a high percentage of instances to cause stones to be formed in the kidneys of these animals. This, then, definitely established for the first time a very positive cause and effect. The only objection to this work from the clinical standpoint is that frequently patients with stones are seen with no renal infection or, if infection is present, there may be no evidence of the specific streptococcus of Rosenow.

PRECIPITATION FROM SUPERSATURATED SOLUTIONS

Taking for granted that stasis or the presence of a urea-splitting streptococcus or Proteus ammoniae [4] or both may be responsible for the formation or at least for the growth of a calculus, one is still at a loss to explain the existence of a large number of calculi which obviously do not depend on these two factors. On account of this, organic and physical chemists suggested the precipitation of crystalloids and colloids from supersaturated solutions as a basis for the formation of renal calculi. Proof of the existence of the nidus necessary to start the precipitation was, however, lacking. This has recently been furnished by Randall [5] and by Hellström.[6] Not much more than ten years ago this was apparently the most popular and acceptable theory, for it is the chief topic of discussion on the subject of urinary calculi in the 1926 edition of Young's "Practice of Urology." [7] It has been supported experimentally. Keyser,[8] among others, has published researches from 1920 to the present on the experimental production of renal calculi. He has been able to produce calculi (1) by feeding of oxamide, (2) by producing an artificial excessive excretion of calcium oxalate, (3) by excessive doses of parathyroid extract and of viosterol and (4) by formation of uric acid calculi in dogs with Eck's fistulas. He divided calculi into two groups, the hyperexcretory and the infectious.

CALCIUM METABOLISM

One must not neglect to consider the part played by disturbance of the calcium metabolism, especially in cases of hyperparathyroidism. Attention was directed to this first by Barr, Bulger and Dixon [9] and more recently by Albright, Aub and Bauer.[10] These authors emphasized that the inability of the bones to retain calcium is the outstanding clinical manifestation of hyperparathyroidism, together, not infrequently, with progressive calcification of the renal cortex accompanied by the formation of renal calculi.

DIET

It was not until 1933 that Higgins [11] drew attention to the work of Osborne, Mendel and Ferry,[12] who in their experiments on vitamin A deficiency found a large incidence of renal and vesical calculi, and also to the work of Fujimaki,[13] who confirmed the work of Osborne, Mendel and Ferry and further noted that in all rats in which calculi developed the urine was alkaline and that the calculi were invariably dissolved when these rats were fed vitamin A. Higgins in 1933 was able not only to confirm these observations but to make the further observations that, as a rule, urinary infection was present and that keratinization of the urinary

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1. Fowler, O. S.: Ureteral Obstruction Causing Urinary Stasis, J. A. M. A. **62**: 367 (Jan. 31) 1914.
2. Hunner, G. L.: Ureteral Stricture, J. A. M. A. **82**: 509 (Feb. 16) 1924.
3. Rosenow, E. C., and Meisser, J. G.: Nephritis and Urinary Calculi After Production of Chronic Foci of Infection, J. A. M. A. **78**: 266 (Jan. 28) 1922.
4. Hager, B. H., and Magath, T. B.: The Formation of Vesical Calculi, J. A. M. A. **90**: 266 (Jan. 28) 1928.
5. Randall, Alexander: Surg., Gynec. & Obst. **64**: 201 (Feb.) 1937.
6. Hellström, J.: Staph. Stones, Stockholm, 1936.
7. Young, H. H., and Davis, D. M.: Practice of Urology, Philadelphia, W. B. Saunders Company, 1926.
8. Keyser, L. D.: Recurrent Urolithiasis: Etiologic Factors and Clinical Management, J. A. M. A. **104**: 1299 (April 13) 1935.
9. Barr, D. P.; Bulger, H. A., and Dixon, H. H.: Hyperparathyroidism, J. A. M. A. **92**: 951 (March 23) 1929.
10. Albright, Fuller; Aub, J. C., and Bauer, Walter: Hyperparathyroidism, J. A. M. A. **102**: 1276 (April 21) 1934.
11. Higgins, B. C.: Urol. **29**: 157 (Feb.) 1933.
12. Osborne, T. B.; Mendel, L. B., and Ferry, Edna L.: The Incidence of Phosphatic Urinary Calculi in Rats Fed on Experimental Rations, J. A. M. A. **69**: 32 (July) 1917.
13. Fujimaki, Y.: Japan. M. World **6**: 29, 1926.

epithelium coexisted. In 1935 he [14] presented evidence that the same experiments could be repeated on dogs with chronic vitamin A deficiency.

Higgins has been able to translate his dietary experiments to human beings and claims not only that with the aid of vitamin A and an acid ash diet he has been able to reduce the recurrence of calculi in his patients from 16.4 per cent to 4.7 per cent but that he actually has complete reports of twenty-three cases [15] in which stones in the kidney have entirely disappeared under medical (dietary) management.

In contradistinction to this, one may read such articles as that from Dr. Edwin Beer's service at the Mount Sinai Hospital, New York, by Oppenheimer and Pollack,[16] who found that in five of twenty-seven patients observed from six to sixteen months the stones increased and that in none did they disintegrate or even diminish in size.

EMBRYONIC RENAL CALCULI

Randall,[5] of Philadelphia, and, independently of him, Hellström [6] made the interesting observation that plaques of pure calcium are frequently deposited under the epithelium of the renal papillae. Presumably, stones develop on these plaques when the surface epithelium has been eroded. This exceedingly important observation may give an entirely new concept, not alone of the origin of renal calculi but also of their subsequent development.

GEOGRAPHIC DISTRIBUTION

Apart from all these most fascinating studies, it is known that the incidence of urinary calculi varies from one country to another and even within different parts of the same country. It is also known that there are marked racial differences. According to Hoffman,[17] statistician for the Prudential Life Insurance Company, for persons over 30 years of age the incidence of deaths due to calculous disease of the urinary tract is 23.9 per million of population in Utah and only 2.4 in Vermont. In England and Wales (1914-1918) the death rate from urinary calculi (all ages) was 7.5 per million of population, while in Uruguay and Chile (1914-1918) it was only 1.3. Similarly, in Victoria, B. C. (1916-1920), the mortality rate from this cause per million of population was 26.2, in London (1915-1920) 7.9, in Amsterdam (1914-1918) 3.2 and in Mexico City (1916-1919) only 1.8.

Hoffman's most interesting figures, however, are those having to do with racial differences. Mortality statistics for the United States registration area show, per million of population, white males 9 and colored males 7, white females 4.1 and colored females 2.7. This is of the utmost importance in the light of my data regarding the South African Negro, for it indicates only a slightly lower incidence in the Negro than in the white race.

Hinman,[18] in discussing the geographic distribution of urinary calculi, says: "The most notable stone districts (India, Mesopotamia and South China) lack proper sanitation and suitable food, but the African Negro, similarly deficient, is almost immune to stone," and "in general the higher the standard of living the lower the incidence." Except so far as the African Negro is concerned these statements are not necessarily correct, as the aforementioned statistics prove.

INCIDENCE OF URINARY CALCULI IN THE SOUTH AFRICAN NEGRO

Living in the Union of South Africa, I soon noticed that statements similar to the foregoing regarding the lack of urinary calculi in the African Negro seemed to be correct despite the fact that I could find no accurate statistics on the matter. With this in mind I consulted A. J. Orenstein, chief medical officer for the Chamber of Mines. At my request he had the records of the admissions to the various mine hospitals analyzed. The patients admitted to the mine hospitals are all Negroes who when recruited for work on the mines were apparently physically well. In this analysis he found that in a series of one million admissions, in only one case was the diagnosis made of renal calculus. This discovery was so striking that with the permission of the superintendent of the Johannesburg General Hospital I examined their records covering the fourteen years from 1922 to 1935 inclusive. During this time 126,000 white and 91,000 colored patients were admitted to the wards. Of these, 273 white and only four colored patients were proved to have had renal or ureteral calculi. Of the four colored (non-European) patients, one was an Indian, two were half-caste and only one was a full-blooded Negro. She was a Masuto, a domestic servant, aged 30, who was admitted to the hospital in 1927, having been ill for four months with pain in the lower part of the abdomen. She had missed her previous menstrual period. Her urine contained a few pus cells and a trace of albumin. X-ray examination, however, showed a small shadow in the course of the right ureter, presumably a ureteral calculus. A calculus was not passed, and as cystoscopic examination was refused I am unable to say definitely whether the shadow represented a calculus. These figures indicate that about one white patient in 460 admitted to the Johannesburg General Hospital has a renal or ureteral calculus. In contradiction to this, in over 90,000 admissions to the non-European section of the hospital there was only one Negro who may possibly have had a renal or ureteral calculus.

DIFFERENCES IN THE NEGRO AND THE CAUCASIAN KIDNEY

Is the Negro kidney different from the Caucasian in its anatomy or its physiology? Does the calcium metabolism differ markedly in the two races or does diet play a part?

From the aforementioned statistics one is almost led to believe that the difference in incidence of renal calculus is not due to an anatomic or a physiologic difference in the Negro kidney, for in the United States the mortality from calculous disease is apparently only slightly lower in the Negro than in the white population. If one were to collect data on only the pure-blooded American Negro, one might of course get a different picture.

HEALTH AND DIET OF THE SOUTH AFRICAN NEGRO

Between 1920 and 1933 Burton [19] examined some 30,000 Xosa and Fingo natives in the Kingwilliamstown area. From this study he came to the conclusion that the men of those tribes must be regarded as very healthy; the majority were of good physique, and among them he found a standard of muscular develop-

14. Higgins, B. C.: Tr. Am. A. Genito-Urin. Surgeons, 1935, p. 157.
15. Higgins, B. C.: New England J. Med. **213**: 1007 (Nov. 21) 1935.
16. Oppenheimer, G. D., and Pollack, Herbert: Attempted Solution of Renal Calculi by Dietetic Measures, J. A. M. A. **108**:349 (Jan. 30) 1937.
17. Hoffman, F. L.: M. Rec. **101**: 532 (April) 1922.
18. Hinman, Frank: Principles and Practice of Urology, Philadelphia, W. B. Saunders Company, 1935.
19. Burton, A. W.: South African M. J. **8**: 327 (May 12) 1934.

ment equal to or surpassing that seen among Europeans. He estimated that only 10 per cent could be classed as physically unfit. Their bony structure is as a rule densely calcified, and their teeth rarely if ever show any caries.

According to the 1932 report of the medical officer of health for the Bechuanaland Protectorate, one finds malnutrition not so widespread among the Negroes as among the poor white population.

According to Fox [20] the Negro on the whole finds no difficulty in satisfying his simple requirements, which consist of various combinations of maize (chiefly eaten cooked as a cereal in the form of corn meal, with sugar and with some milk when available), meat, yellow pumpkin and various edible plants which are to be found growing as weeds on the veld. A similar diet has been worked out for the Negroes who work in the Rand Gold Mines. It consists of corn (maize) meal, meat and/or milk, beans or peanuts, and green vegetables. Dr. Fox, the biologist for the South African Institute for Medical Research, told me that his chief difficulty in computing this diet was to arrange one which the Negro would be willing to eat and which would also satisfy (apart from the necessary organic constituents) at least the minimum maintenance requirement of 0.45 Gm. of calcium per day. This he has not been able to do, and outside of the mine compounds the Negro, he feels sure, exists on less than one tenth of this minimal daily requirement. In analyzing this simple standard diet, on which three and one-half million Negroes living in the Negro reserves, two and one-half million Negroes living on farms belonging to their white employers, and the half million town dwellers all exist and remain healthy, one finds several striking characteristics: (1) an extremely low calcium content, (2) an acid ash base and (3) a high vitamin A content. What more ideal diet could one find to comply with Higgins's experimental work?

SIGNIFICANCE OF DIET AND VITAMIN A

In view of these facts, when one summarizes all the data that have been accumulating so rapidly the past few years, one feels that diet must and does have an important part in the formation of renal calculi, as is also well illustrated by the frequent formation of renal calculi in patients on a Sippy diet. It cannot be a matter of the standard of living or of proper sanitation, as intimated by Hinman [18] in his recent textbook; nor can it be, one is inclined to feel, merely a matter of a high vitamin A and an acid ash diet, as is so well shown by the recent article by Oppenheimer and Pollack.[16]

Jeans, Blanchard and Zentmire,[21] in describing a new photometer for detecting the vitamin A deficiency of their patients, again bring to one's attention the fact that a large percentage (from 19 to 35) of apparently healthy children, chiefly in the higher social classes, suffer from vitamin A deficiency. They also point out that the administration of vitamin A does not necessarily cure all these patients. This indicates that vitamin A, although taken in sufficient quantity, is not always assimilated by the body. It makes one feel that certain foods may inhibit and others aid in the assimilation of vitamin A. This might well account for the difference between the results obtained by Higgins and those of the Mount Sinai Hospital. If the Jeans and Zentmire photometer were used on patients with urinary calculi before and after the administration of vitamin A, one might obtain the answer to some of the marked differences that are being observed clinically.

20. Fox, F. W.: South African M. J. **10:** 25 (Jan. 11) 1936.
21. Jeans, B. C.; Blanchard, Evelyn, and Zentmire, Zelma: Dark Adaptation and Vitamin A, J. A. M. A. **108:** 451 (Feb. 6) 1937.

CONCLUSIONS

1. The South African Negro (Bantu) does not form renal calculi, as illustrated by examination of the hospital admission records of 1,091,000 Negro patients.

2. Members of the white population of South Africa, as illustrated by the examination of hospital records of 126,000 admissions, form renal calculi in the ratio of one in 460 admissions.

3. The South African Negro lives on a simple, stable and uniform diet. This diet is rich in vitamin A, has an acid ash base and is extremely low in calcium.

4. Urinary stasis and infection have an important part in the formation of renal calculi.

5. The efficacy of the administration of vitamin A should regularly be checked by studying the regeneration of the visual purple, so that one can be certain that it is available for assimilation.

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THE DIAGNOSIS AND TREATMENT OF THE COMMONER FORMS OF CEREBRAL TRAUMA

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The diagnosis, prognosis and treatment . . . of cranial injury after head trauma are in an unsettled state. . . . The more modern devices of treatment, such as the use of intravenous hypertonic solutions, repeated lumbar puncture, and even subtemporal decompression of the brain are all methods not as yet proved to be either essential or even valuable in the treatment of this condition.

These words are quoted from an editorial in the *New England Journal of Medicine* for April 1933.[1]

In the same year Dandy [2] stated that 20 per cent of the total number of patients with severe head injury must be regarded as beyond redemption by any rational means available and that another 10 per cent can be saved only by a subtemporal decompression.

Coleman,[3] in a recent contribution on the management of acute head injuries, said:

> In my own experience with dehydration it was found that if the dehydration were carried to the extent where fluid was removed from the brain in sufficient amount to cause marked reduction of intracranial pressure, the condition of the patient was made worse rather than better.

On the other hand, Munro [4] in 1934 stated:

> The diagnosis of craniocerebral trauma is firmly established on a pathological basis. . . . One treatment for the usual forms of brain injury has been standardized. It consists of the preliminary treatment of surgical shock, when present, followed by therapeutic dehydration [by means of a hypertonic solution of dextrose administered intravenously] and repeated lumbar puncture for decompression.

These divergent views, all from sources whose authority demands respectful attention, justify critical

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1. Editorial, New England J. Med. **208:** 909 (April 27) 1933.
2. Dandy, W. E.: Diagnosis and Treatment of Injuries of the Head, J. A. M. A. **101:** 772 (Sept. 2) 1933.
3. Coleman, C. C.: The Management of Acute Head Injuries, South. M. J. **30:** 196 (Feb.) 1937.
4. Munro, Donald: The Diagnosis, Treatment and Immediate Prognosis of Cerebral Trauma, New England J. Med. **210:** 287 (Feb. 8) 1934.

investigation by all who accept the responsibility for treating this constantly increasing type of trauma. The purpose of this paper is to clarify the apparent confusion existing in the minds of many surgeons because of such conflicting expressions and to advocate the application of certain fundamental principles in the treatment of the commoner forms of cerebral trauma. The material on which the following remarks are based consists of 1,056 cases of craniocerebral trauma admitted to the neurosurgical wards of the Hillman Hospital, Birmingham, Ala., from Nov. 1, 1934, to April 1, 1937.

One is immediately impressed with the fact that an intelligent exchange of ideas must have as its basis a more or less standardized classification of skull and brain injuries. It is impossible to speak in general

*Classification of Skull and Brain Injuries**

Skull	Linear and/or comminuted fracture				
	Depressed fracture				
	Compound fracture				
	Special fractures	Involving paranasal sinuses			
		Middle and/or external ear			
		Including pneumo-encephalocele			
		Cribriform plate			
		Bullet wounds			
Brain	Concussion				
	Edema				
	Contusion and/or laceration				
	Special	Hemorrhage	Sub or Extra	Dural	
			Rarer forms	Subpial	
				Subcortical	
				Intraventricular	
				Rupture of venous sinus	
				Multiple petechial	
		Infection	Meningitis		
			Cortical abscess		
Scalp	Lacerated and/or incised wound				
	Contusion				
	Hematoma				
General bodily conditions	Surgical shock				
	Exhaustion				
	Dehydration				

* From Munro.[4]

terms of the management of a condition the pathologic process of which varies from simple edema of the brain to compound depressed fracture of the skull with extensive damage to the brain. The classification must be based on a thorough knowledge of the underlying pathologic picture as well as on a definite understanding of the deranged cerebral function. Such a classification has been presented by Munro and is shown in the accompanying table; it is, I think, worthy of general acceptance.

It will be of value to review briefly the normal physiologic processes of the cerebrospinal fluid and cerebral circulation. The fluid, originating at the choroid plexus in the lateral ventricles, passes through the foramen of Monro into the third ventricle and thence through the aqueduct of Sylvius into the fourth ventricle. From there it passes through the foramina of Luschka and Magendie into the cisterna about the base of the brain and on to the cerebral and spinal subarachnoid spaces. It is over the cerebral subarachnoid spaces that the major portion of the fluid finds its way back into the circulation through minute openings in the arachnoid villi. The rate of absorption is slightly less than that of production, so that the fluid normally is under a pressure of from 100 to 150 mm. of water when the subject is in the lateral recumbent position.

The venous circulation in the brain is of importance, primarily because the cerebrospinal fluid is absorbed into it. While the fluid pressure is slightly higher, for practical purposes one may say that the fluid pressure and the venous pressure are equal. The point of clinical importance is that as the venous pressure in the brain increases the intracranial pressure does so proportionately.

The first thing that happens after a blow to the head, the force of which is severe enough to be transmitted to the brain, is dilatation of the arterial side of the capillary loop. This produces a sudden rise in the hydrostatic pressure in the capillary loop and a leakage of serum into the perivascular spaces. Changes are thus produced in the osmotic relationship between the perivascular fluid and the blood in the capillary loop, so that a further seepage into these spaces occurs. The end result is that the venous capillaries are compressed, shortly producing back pressure in the entire capillary tree. If this state of affairs progresses there ensues anoxemia of the part of the brain involved, and possibly multiple petechial hemorrhages due to stasis of the capillary circulation. As the cerebral circulation fails, the medullary centers, as a result of the progressive anoxemia, respond, and there is a rise in the systemic blood pressure and a slowing down of the pulse rate. This reestablishes for a while the cerebral circulation, until there is a repetition of the cycle, which if not broken by a reduction of the intracranial pressure finally results in complete exhaustion of the centers—and death.

According to the degree of oxygen deprivation of nerve tissue, there will be actual and irreparable cellular destruction. This not only adds further to the already increased intracranial pressure but may be responsible for permanent post-traumatic difficulties, such as headaches, convulsive seizures and so-called post-traumatic neuroses.

Still another factor contributing to increased intracranial pressure is the purely mechanical blockade to the absorption of cerebrospinal fluid incident to the piling up of extravasated red blood cells in the cerebral subarachnoid spaces. The arachnoidal villi are blocked, and there follows a rapid increase in the volume of cerebrospinal fluid within the subarachnoid spaces and the entire ventricular system.

These facts form the physiologic and pathologic bases for the fundamental group of cerebral injuries, namely, congestion and edema, contusion and laceration. This may properly be called the fundamental group, for any of the more unusual forms of injury are superimposed on one or all of the conditions in it.

The information needed to classify properly the injury is obtained by careful observation of the patient's symptoms from the time he reaches the admitting ward and, as soon as his condition permits, neurologic examination, including lumbar puncture. Without definite knowledge concerning the pressure of the cerebrospinal fluid, determined by manometric reading, and the presence or absence of blood in the fluid, I fail to see how one can do otherwise than conjecture regarding the underlying pathologic condition.

Congestion and edema constituted about 25 per cent of the cases in our series and are characterized clinically by primary loss of consciousness followed by headache on return to the conscious state. There may also be

disturbances of memory and, if the injury is serious enough, convulsions and motor weakness. The diagnosis is reached by recognition of these signs plus the fact that the cerebrospinal fluid does not contain red blood cells and the pressure is only moderately increased. There is no mechanical blockade to the absorption of spinal fluid with this type of injury, but the brain volume is increased by excessive perivascular and intracellular fluid.

Contusion and laceration are different degrees of the same type of injury and presuppose congestion and edema. They constituted slightly more than 50 per cent of our cases and are characterized by the symptoms due to increased brain volume plus the extravasation of blood into the subarachnoid spaces, thus producing a mechanical blockade to the absorption of cerebrospinal fluid. All the signs seen with congestion and edema are present but more exaggerated, i. e., there is a deeper coma—an increased restlessness amounting at times to mania—plus a spinal fluid under greatly increased pressure and containing anywhere from just enough red blood cells to color the fluid pink to almost pure blood. The richness of the mixture of spinal fluid with blood is significant of the degree of damage and influences the prognosis.

The intelligent treatment of congestion and edema, contusion and laceration of the brain should be the concern of every physician engaged in the general practice of medicine and surgery. Injuries to the head are perhaps the most common type of major trauma of the present day. And whether the general surgeon wants them or not, they are literally dumped into his lap. Their distribution is universal, and, because the first twenty-four hour period in treatment often decides the outcome, it behooves the physician in the smaller towns, as well as the doctor in the larger cities, to be familiar with the application of certain fundamental principles of treatment when he is confronted with these grave emergencies. Stated briefly, the important objectives are the management of shock and the reduction of increased intracranial pressure.

It has been my experience that the majority of all patients suffering serious brain injury are either actually or potentially shocked. This condition demands priority in treatment, and no disturbing procedures, diagnostic or otherwise, are attempted until it is determined that the patient has emerged from this state. The best criterion is the temperature, which is taken every fifteen minutes, together with observations on the blood pressure and the pulse. Dandy has correctly said that a patient who will not survive a period of from four to six hours' observation will not recover regardless of treatment. Therefore, immediately on admission the patient should be wrapped in warm blankets and his temperature, pulse and blood pressure taken. Fifty cc. of 50 per cent dextrose is given to combat shock if the temperature is subnormal. If there are lacerations of the scalp no detailed repair of the wound is attempted at this time, but a sterile finger is introduced into the wound to determine the presence of skull fracture. A sterile dressing is then applied. If there has been appreciable loss of blood, from 250 to 500 cc. of physiologic solution of sodium chloride is given. Extreme restlessness is controlled by hypodermic injection of phenobarbital sodium, repeated if necessary. In view of the fact that the respiratory center may already be depressed, morphine, or its derivatives, is contraindicated. Solution of posterior pituitary and ephedrine are permissible as stimulants.

During the entire period of unconsciousness I feel that the patient's position in bed is of great importance. He should be placed in the lateral prone posture with the head of the bed at least 12 inches lower than the foot. In this position large quantities of bronchial mucus drain out which otherwise may be inspirated, producing cyanosis and adding to the already increased intracranial pressure. Furthermore, inspiration of such mucus may be the starting point of a pulmonary infection that will be fatal if the head injury is not. I consider this one of the most important points in the treatment of these cases.

When the patient's temperature reaches 98 F., other things being equal, it is safe to proceed with neurologic examination, in which particular attention is paid to the depth of stupor, the state of the pupils, the cranial nerves, the muscle tone and the reflexes. The type and rate of respiration is of much prognostic value.

X-ray examination is delayed until a more propitious time except in the few cases in which middle meningeal hemorrhage is suspected. A fracture line across the vascular grooves in the skull would be valuable confirmatory evidence of this condition. Otherwise, x-ray examination in no wise influences immediate treatment, and more satisfactory films, with less disturbance to the patient, can be made when the patient's full cooperation is possible.

After this detailed examination lumbar puncture is done for two reasons: (1) to determine accurately the degree of intracranial pressure and (2) to ascertain the presence or absence of blood. The practice of "estimating" the degree of pressure by the rate of flow through the needle, instead of by manometric reading, is to be condemned as inaccurate and misleading. It is surprising how frequently this erroneous procedure is encountered.

If the pressure is within normal limits or only slightly elevated and the fluid is clear, nothing further is indicated. Subsequent treatment is dictated by the clinical signs and symptoms, which are obtained and recorded at thirty minute intervals during the critical period. If the pressure is elevated enough, fluid is withdrawn to reduce it to normal. This is easily and accurately accomplished by means of a water manometer attached to a spinal puncture needle with a three way cock, the operator alternately removing a small quantity and taking the pressure by simply turning the valve so that the fluid rises in the manometer. If the fluid contains blood, as much as possible is withdrawn at this time.

With the information thus gathered a working diagnosis is obtained. If the intracranial pressure is found to be increased, two means are available for reducing it: therapeutic dehydration of the brain and repeated spinal drainage.

The value of dehydration by hypertonic solutions given intravenously, in my opinion, has been vastly overestimated. All that any hypertonic solution can or is supposed to do is to reduce brain volume. Treatment of any type of injury other than simple edema by this method is, therefore, unjustifiable. The increased pressure will be reduced just so much as the brain volume is reduced. This will not affect the pressure, due to an excessive amount of fluid and extravasated blood, to any appreciable degree. Occasionally, after therapeutic dehydration a dramatic temporary result is obtained, only to be followed by an overwhelming wave of secondary edema for which there is no effective treatment. It is claimed that sucrose has eliminated this

possibility. I have not as yet had the opportunity to confirm this in a sufficiently large number of cases to warrant an opinion. Unless used with the greatest caution and checked by frequent pressure readings, dehydration may prove a dangerous boomerang.

On the other hand, repeated spinal drainage will reduce brain volume because the intracranial pressure is lowered, thus tending to restore the cerebral circulation to normal. This mechanical decompression promotes the absorption of excess intracellular and perivascular fluids and permits the brain tissue once again to begin to receive its required amount of oxygen. In addition to the removal of excess fluids, much of the extravasated blood incident to the contusion and laceration of the brain is removed, creating in this manner more space in the overcrowded cranial cavity.

For these reasons, in all cases in which the pressure is increased as indicated by manometric observation, and in which the fluid is found to contain blood, one performs drainage as often as in one's judgment the particular situation demands. In the presence of bloody fluid, drainage is repeated at intervals of eight, twelve or twenty-four hours, depending on the richness of the mixture, until it is clear. The condition is never the same in any two cases, and I feel very strongly that one should not attempt to establish a routine.

If, after sufficient time has elapsed, signs of progressive improvement in the patient's condition do not appear, one is quite justified in presuming that, in addition to one or more of the conditions in this fundamental group, more serious damage is present, such as subdural or extradural bleeding. In this event one is justified in making subtemporal burr openings to ascertain whether such is the case. In experienced hands this is easily done with local anesthesia and does not jeopardize the patient's welfare in any way.

It is not in the province of this paper to discuss the treatment of the more unusual conditions, but I would emphasize the fact that unless one is equipped with an efficient suction apparatus, as well as an electric coagulation apparatus, one is courting disappointment and a high mortality rate in attempting any operative procedures, however simple, on the brain.

The principles of treatment herein outlined have succeeded in reducing the total mortality rate in 1,056 cases, seen during less than a three year period, from the former very high percentage of 46 to 14.6. If only the fundamental group is considered, the percentage drops to less than 8.4.

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ABSTRACT OF DISCUSSION

DR. WALTER E. DANDY, Baltimore: In cerebral injury in the acute stage, the first consideration is the preservation of life. When life is safe, preservation of cerebral function engages the attention. If a patient is in shock, he should be at absolute rest; nothing is done except to clean and close a compound wound; this should practically always be done immediately. Depressions are left to a period when life is no longer at stake. The estimation of a patient's condition is dependent on a careful bedside study, study of the pulse, respiration and temperature; as Dr. Moore said, one should know these at fifteen minute intervals. In fact there isn't any condition in intracranial surgery that requires such close and accurate study as injuries of the head. Most patients get along better if they are left absolutely alone; i. e., if they are not dehydrated and if they do not get lumbar punctures and x-ray examinations. Roentgenograms mean nothing and should not be taken until the patient is well out of danger; and even then there is no point in x-ray examinations except for medicolegal reasons. I do not think there is any medical treatment that adds to the patient's welfare during the acute stages of intracranial pressure. There is a great rebound in the use of intravenous dextrose and intravenous hypertonic salt. One thinks one is getting results, but the patient is paying for it by the rebound. The same holds true with lumbar punctures. Nature removes the fluid by passing it into the blood, and in much better fashion. There is only a small percentage of cases in which an operation is indicated, and that operation is usually a simple, subtemporal decompression. When intracranial pressure becomes so high that one can be certain that nature unaided can no longer save the life, the only hope lies in a direct relief of pressure by surgical means. My own method is to make a small perforator opening over the right parietal region, and if that shows no blood or extracerebral fluid the left side is similarly punctured. The effects of trauma will usually be disclosed by blood or fluid over one or the other cerebral hemisphere. A rapid subtemporal decompression under local anesthesia produces permanent relief, not relief over a period of a few hours, but permanent relief during the period of intracranial pressure. It sounds well to expect relief in other ways, but there just isn't any other way. In safe hands, this is a perfectly safe procedure. My firm belief is that the patient must be left absolutely at rest. Fluids should not be restricted. These patients need and should be given fluids if they are able to swallow. One should watch the pulse, temperature and respiration and, above all, the state of consciousness and the state of restlessness, which is the borderline between coma and consciousness. These bedside studies tell when one is in the danger zone. When life hangs in the balance, a decompression is the only safe method of relief.

DR. R. GLEN SPURLING, Louisville, Ky.: Dr. Moore has expressed a safe, conservative point of view on this subject. Certainly the results of this treatment have been as satisfactory as in any large series of cases with which I am acquainted. There are several minor points in his arguments, however, with which I find myself in disagreement. The first of these is the incidence of traumatic shock seen after head injury. I have been impressed by the frequency of this state except when there are other associated injuries. Second, the effect of spinal puncture for the reduction of intracranial pressure impresses me as being so transient that its therapeutic value from this point of view is almost negligible. I agree, however, that spinal puncture when done for the purpose of diagnosis, for measurement of intracranial pressure or for the removal of blood when there are signs of meningeal irritation is a valuable procedure. Third, dehydration by hypertonic dextrose is, I believe, of questionable merit. That the absorption of dextrose by the brain tissue causes a secondary wave of edema has been amply demonstrated both clinically and experimentally. When vigorous dehydration is indicated, and I believe this is of relatively infrequent occurrence, sucrose is a far better drug because it is not associated with the undesirable pressure effects of dextrose. Severe dehydration by a greatly reduced fluid intake over a period of days is to my mind harmful rather than beneficial, for if one actually restricts the fluid sufficiently to reduce the size of the brain, one must likewise dehydrate every other soft tissue of the body to a like degree. I do not believe that this state is a desirable one. I am glad to hear Dr. Moore stress strongly the subject of Coleman's postural drainage. This is one of the most important contributions to the subject of head trauma in recent years. Having experimented for a good many years with most of the advocated methods of treatment of head trauma, I have about concluded that the most essential features are as follows: 1. Good nursing care. 2. Careful repair of scalp lacerations and compound skull fractures with or without underlying brain damage. 3. Postural drainage to prevent pulmonary complications in the unconscious patient. 4. Constant, alert observations by the physician to recognize focal complications such as extradural and subdural clots and increased intracranial pressure. 5. Prompt operative intervention when neurologic examination indicates the presence of a surgical lesion. 6. Careful examination of the patient for associated injuries. 7. Withdrawal of bloody spinal fluid when signs of meningeal irritation appear. 8. Most important of all, perhaps, when one is in doubt as to indications for treatment, confining one's efforts to general nursing care and close observation.

Clinical Notes, Suggestions and New Instruments

MYOCARDIAL INFARCTION COMPLICATING PREGNANCY IN A YOUNG WOMAN

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AND
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A Jewish woman, aged 22, consulted us May 4, 1936, because of some uncertainty about the significance of chest pain occurring eight days before. She had always been in excellent health except for scarlet fever at the age of 10 years and tonsillitis followed by tonsillectomy at 12. She had worked hard and played tennis without any symptoms. At the time of the occurrence of the pain she was at the end of the second month of her first pregnancy. There had been no evidence of infection or of an attempt to interrupt the pregnancy.

Her father, mother, four sisters and one brother were alive and well.

April 26, on getting out of bed, she had been seized by a moderate paroxysm of coughing, which was at once followed by a rather severe oppressive pain across the front of the upper part of the chest, radiating equally down the two arms to the wrists. She coughed no more and there was no sputum, but nausea developed and she vomited three times that day; there was no blood in the vomitus. Because of the persistence of the disagreeable chest pain she went to see her physician in the afternoon and he found nothing apparently wrong. However, he gave her some medicine (capsules) for the pain and advised rest in bed for four days. This she carried out and then got up and about, feeling somewhat weak and having a poor appetite. No note was made of any fever. While in bed she was seen by a consultant, who took an electrocardiogram the day following the occurrence of the pain, which showed late inversion of the T waves in lead 1; of this we learned only several weeks later.

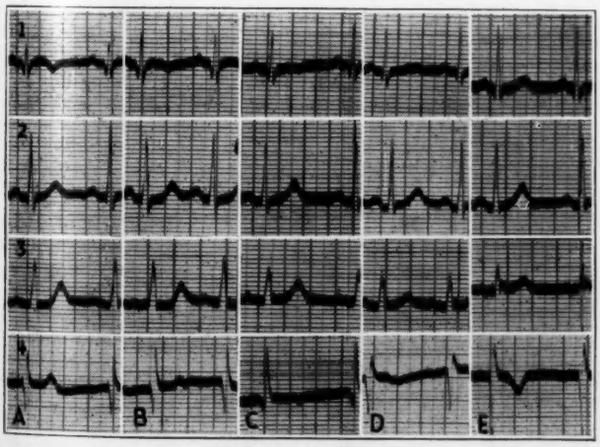


Fig. 1.—Tracings (four leads) following the attack of chest pain: *A*, May 4, 1936, eight days after the attack of pain. *B*, June 4, one month later. *C*, July 3, two months later. *D*, September 3, four months later. *E*, November 6, six months later. Note the late inversion of the T waves in lead 1, the high T waves in lead 3 and the upright T waves with persistence of the Q waves in lead 4, May 4 and June 4. There is a slight decrease in these abnormalities in the second tracing. July 3 the T waves in lead 1 are slightly diphasic, almost flat, while the T waves in lead 4 have become very slightly inverted with a level ST segment. September 3 the record is more normal, and November 6 the record is completely normal with a return of the T waves in lead 1 to an upright position, a decrease in the height of the T waves in lead 3 and normal T waves in lead 4.

At the time of examination in our office, May 4, she felt a bit weak and nervous but otherwise well. Physical examination was entirely negative save for slight pallor and an oral temperature of 99 F. The heart was normal in size, sounds, rate and rhythm. There were no murmurs. The pulse rate was 76 and the blood pressure measured 115 mm. of mercury systolic and 70 diastolic.

Fluoroscopic examination showed no abnormalities of the heart, great vessels or lungs. By orthodiagram the transverse diameter of the heart measured 9.1 cm. and the internal diameter of the thorax 22.8 cm.

A tentative diagnosis of chest muscle strain and acute respiratory infection was made until the electrocardiogram was seen at the end of the examination. This occasioned considerable surprise and was repeated for certainty. It showed normal rhythm, with a rate of 90, with late inversion of the T waves in lead 1, high T waves in lead 3 and upright T waves in lead 4, indicative of infarction of the myocardium in the region of the apex of the left ventricle (fig. 1). The abnormal electrocardiogram, which had been taken several days earlier, was not then known to us.

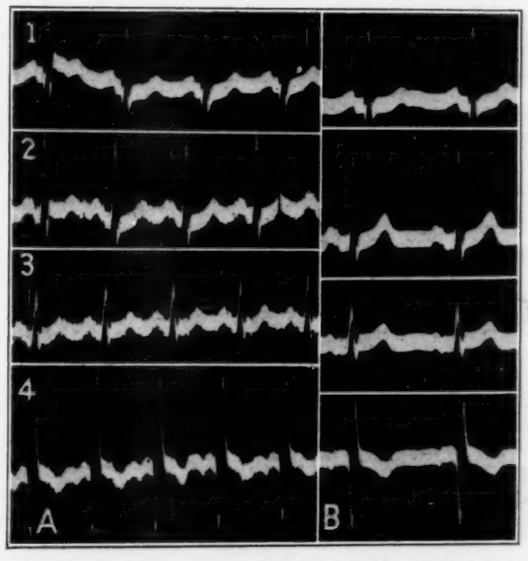


Fig. 2.—Tracing taken at the time of delivery, December 13: *A*, at 12: 25 a. m. during the second stage, fully dilated; pulse rate from 127 to 146. *B*, at 1: 40 a. m., one hour post partum; pulse rate 90. Note the normal T waves in all leads in both records.

A convalescent period of several weeks in bed was prescribed and the patient rapidly regained a state of perfect health, with but one unpleasant episode, consisting of a paroxysm of tachycardia for half an hour, May 10, six days later, at the time of some nervous excitement. She continued in excellent health after that with normal manifestations on physical examination at intervals of every few weeks. The electrocardiogram gradually returned to normal in the course of six months.

The pregnancy progressed uneventfully and on December 12, seven and one-half months after the attack of chest pain, labor began after spontaneous rupture of the membranes. The patient was kept asleep and quiet, with the aid of hydrochlorides of the alkaloids of opium, principally morphine, and pentobarbital sodium throughout the first stage of labor, which lasted seven hours, during which time there were no symptoms or signs of cardiac embarrassment. As soon as the os was fully dilated she was delivered with central episiotomy and low forceps, and the placenta and membranes were expressed a few minutes later. The puerperium was uneventful. The mother and child were in excellent health Feb. 17, 1937, two months after childbirth; the electrocardiogram was then normal, as shown in figures 1 *E* and 2 *B*.

Electrocardiograms taken during labor (fig. 2 *A*) and post partum (fig. 2 *B*) showed no abnormalities of the T wave; the QRS waves in lead 2 decreased sharply in voltage for a few beats at the time of the actual delivery.

The persistence of the Q wave in lead 4 indicates the probability that the infarct in this case was not on the septal and anterior wall of the left ventricular apex but rather on the lateral wall.

There has been no evidence of coronary embolism, myocardial infection or trauma, or pericardial disease.

From the Cardiac and Obstetrical Clinics of the Massachusetts General Hospital. Presented in part before the meeting of the New England Heart Association, Massachusetts General Hospital, Nov. 9, 1936.

SUMMARY AND CONCLUSIONS

A woman, aged 22, has been observed with clinical and electrocardiographic evidence of acute myocardial infarction, undoubtedly the result of coronary thrombosis (coronary embolism is a very remote possibility). So far as we know she is the youngest woman who has ever been reported as having this lesion.[1] We have encountered one man of the same age (22 years) with excellent recovery after coronary thrombosis, and four other patients, all men under the age of 30 (23, 26, 26 and 29 years). The youngest person on record was a youth aged 18 years.[2]

In the case reported here the coronary thrombosis complicated pregnancy in the second month with no harmful effect on the normal course of the pregnancy, childbirth and puerperium. There is one other published case of coronary thrombosis complicating pregnancy; this was in a woman, aged 45, with marked hypertension and congestive failure.[3]

Our case strongly suggests that coronary thrombosis and myocardial scarring may easily escape notice in a young person and this, with our other experience, indicates that myocardial infarction may after all not be very rare in young adults. Electrocardiographic evidence is essential for diagnosis in view of the fact that recovery even after extensive infarcts is the rule in youth.

PRIMARY SUPPURATIVE CHOLANGEITIS

REPORT OF A CASE AND THE VALUE OF LIVER REHABILITATION IN THERAPY

ANTHONY BASSLER, M.D., NEW YORK

Suppurative cholangeitis is considered to be secondary to conditions allowing of infections, such as gallstones, obstructions of the bile ducts from various causes, parasitic worms and carcinoma and from wasting conditions, such as typhoid, cholera and pneumonia. The bacteria isolated have been streptococci, staphylococci, Escherichia coli, Bacillus typhosus, pneumococci and Clostridium Welchii, the latter sometimes occurring as a primary infection. The onset is usually vague and the condition not suspected until septic symptoms appear. It may begin with attacks of jaundice simulating catarrhal jaundice, in which it is insidious or begins acutely as a septic process without jaundice. As a rule pain is absent until late in the disorder. In most instances the condition resembles malignant disease, from which it differs in the diffuse and regular enlargement of the liver, septic symptoms including a marked leukocytosis and polynuclear cytosis, and rapidly developing serious illness. Even in the presence of jaundice from involvement of the periradicular tissue in the liver, the diagnosis of the primary form is especially difficult. In the presence of gallstones or recent severe infectious disease, when pyrexia, chills, jaundice, leukocytosis with high polymorphonuclears and enlargement and tenderness of the liver occur, the diagnosis may be assumed with considerable degree of accuracy. I have seen thirty-one cases in the last five years and in all but two the suppurative process in the liver was judged as accompanying or secondary to other pathologic conditions. One of these two was multiple small abscesses of the liver due to Clostridium welchii infection in a prominent New York internist who died recently, and the second, the case reported here, strongly suggests that it may occur as an ascending infection and without other pathologic change or cause.

REPORT OF CASE

Dr. de R., aged 42, was born in Colombia, South America, but lived most of his life in the United States. About ten years before admission he had a cough that lasted for several months; it was diagnosed as due to pulmonary tuberculosis but cleared up without special attention in about ten weeks. He was operated on for rectal fistula in 1934. Four years before, when living in New York, he became jaundiced. Other than a slight degree of anorexia, this ran a course similar to acute catarrhal jaundice. In February 1936 he became jaundiced again and the course was again characteristic of acute catarrhal jaundice. This cleared in four weeks under bland diet, bismuth and medical bile aspirations. One of the features of the latter was the constant presence of blood in the A fraction. The present illness began six weeks afterward and followed the shock of a fire and considerable worry over financial affairs. The illness lasted uninterruptedly up to the time of the operation. For the first three weeks the jaundice kept deepening with characteristic gray stools and deep bile-stained urine, intense itching, anorexia, loss of weight and physical weakness. The icterus index during this time varied between 18 and 37, dropping rapidly, and the jaundice cleared during the week before operation. During the three weeks before the operation there was

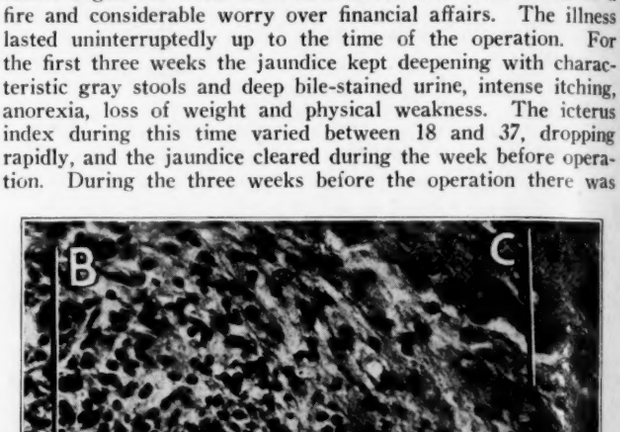


Fig. 1.—Section of liver tissue. *A*, small necrotic foci. *B*, small bile ducts compressed by cuboidal cells. *C*, periphery of lobules and normal liver tissue.

associated with the illness for the first time a rise in temperature. For the first week this was nominal, then rising and diphasic in character between 100 and 105. In the ten days before operation there were distinct chills followed by an abrupt rise in temperature and a drop to 100 in a few hours. During the time of the pyrexia the liver enlarged noticeably, was tender on pressure but remained smooth, the edge never being palpable. The white blood cell count began at about 10,000 with the polymorphonuclears about 80 per cent and gradually rose to 22,000 with polymorphonuclears of 92 per cent. The hippuric acid and blood phosphatase tests were normal before the onset of the septic symptoms, and during all the time of septic state three estimations of hippuric acid, two blood phosphatase, one galactose and two urobilinogen estimations were done, all of them being but slightly positive. The comparison of the blood phosphatase and the urobilinogen tests, however, somewhat suggested an involvement of liver tissue. Two days before

1. Since this paper was written we have read a report published a few months ago by W. J. May on "Coronary Infarction in Young Adults" (South African M. J. **10**: 763 [Nov. 28] 1936. Four patients under the age of 40 years are described in this paper with clinical and electrocardiographic pictures of coronary thrombosis. The youngest was a youth aged 19 years, and the next youngest a woman aged 20. The latter had electrocardiographic evidence of a basal infarct. The other two cases were men aged 38 and 39 years, respectively.

2. Jamison, S. C., and Hauser, G. H.: Angina Pectoris in a Youth of Eighteen, J. A. M. A. **85**: 1398 (Oct. 31) 1925.

3. Reis, R. A., and Frankenthal, L. E., Jr.: Labor in the Cardiac Patient, with a Report of the Occurrence of Coronary Occlusion in Pregnancy and Labor, Am. J. Obst. & Gynec. **29**: 44 (Jan.) 1935.

operation the blood examination was erythrocytes 2,700,000, hemoglobin 9.3 Gm. (54 per cent), color index 1.0, leukocytes 18,800, polymorphonuclears 90 per cent, lymphocytes 5 per cent, mononuclears 4 per cent and basophils 1 per cent, sugar 89 mg., urea nitrogen 14 mg., chlorides 789 mg., and icteric index 20. The urine showed a trace of albumin and was bile negative. The fall of the icteric index and the urine negative for bile are probably explained in the distinct clearing of the jaundice in the week before operation.

Operation was done October 22 by Dr. John F. Erdmann at the Doctors Hospital. Abdominal exposure revealed liver spotted with multitudinous gray to pronounced yellow spots, from pinpoint size to the size of two or three bank pinheads. Both lobes of the liver were greatly enlarged. No tumors were found. Courvoisier's gallbladder was found. The cystic duct was partially flexed. The terminal cystic duct was markedly distended. The common duct was distended to three-eighths inch in diameter. Search for stones revealed none in the common duct except a very small piece of soft material the size of a pinhead. The gallbladder was palpated with the finger, and instrument and no stones were found. Choledochostomy was accomplished with a T tube. Cholecystogastrostomy was performed. A densely adherent appendix was found and removed. One cigaret drain was left down to the choledochostomy with four retention sutures. A preliminary transfusion of 500 cc. of blood was given.

A pathologic report was made by Dr. Henry R. Muller, October 26. Grossly, a piece of liver tissue 2 cm. by 0.5 cm. in the fixed condition and after cultures were made from it did not show the spots seen in the fresh state. A dome shaped specimen from the fundus of the gallbladder showed the walls thickened and the mucosa granular. The appendix was 6 cm. long, its lumen packed with feces, and the wall was thinned out.

Microscopically, sections of the liver showed small foci of necrosis with polymorphonuclear infiltration. In addition there was a marked inflammatory reaction around the portal canals consisting of fibrosis and polymorphonuclear and round cell infiltration. The wall of the gallbladder showed an active inflammatory process in the mucosa and in the wall itself. This was a chronic inflammation consisting chiefly of plasma cells and a deposit of fibroblasts. The appendix showed a mild chronic inflammation in the wall. The diagnosis was chronic cholecystitis, acute periportal hepatitis, miliary abscesses of the liver and chronic appendicitis.

Bacteriologically, liver culture yielded no growth; bile culture yielded Escherichia coli and B. subtilis. Subsequent examinations of bile drainage specimens all contained Escherichia coli and occasionally Pseudomonas.

After operation the temperature and pulse rate gradually subsided for seven days, becoming 99 and about 100, respectively. On the eighth day the pulse rate shot to 140, the temperature rose a degree or two, emesis came on and a postoperative dilatation existed, which was controlled by continued gastric drainage and lavage. After this the temperature and pulse remained for days slightly higher than before the gastric dilatation, the temperature gradually subsiding to normal and the pulse to about 105. For the first two or three days the bile drainage was practically clear and normal looking. It then suddenly became muddy with pus, this lasting for a day or two and then clearing. This continued in repeated ways for three weeks, the bile then being quite clear and remaining so. After numerous items of treatment, mostly dextrose injections and liver injection therapy, his inanition deepened and he lost weight rapidly and became vitally weakened and markedly anemic. About three and a half weeks after the operation the blood proteose and hippuric tests for the first time showed a marked hepatic deficiency, and the possibility of a liver death was imminent. At that time he had been hiccupping for seven days, a distinct diarrhea was present and the stomach was intolerant to fluid and food. At this time a conjoint program of liver rehabilitation was inaugurated which in twenty-four hours changed the whole serious aspect of the case. The fluids were forced by subcutaneous and rectal drip to dilute the excessive toxins in their passage through the liver, adrenals and kidneys; when the stomach became more tolerant the proteins were reduced to meet the lowered detoxicating ability of the liver; the carbohydrates were increased both in diet and by dextrose injections intravenously to build up the liver glycogen reserve; calcium gluconate was given intravenously to build up liver function; in the fluids introduced there was liberal use of sodium chloride and dilute hydrochloric acid given by mouth to replenish blood and tissue chloride depletion and maintain normal water balance and adrenal cortex extract intramuscularly to aid in supporting the adrenal cortex. This program was modified as recovery was definite. In about two weeks after this the patient was well enough to leave his bed and improved slowly but definitely day by day. Bile drainage was kept up steadily for about ten days, and after this the tube was clamped off alternate hours, one hour on and one hour off, this being modified to one hour on and four hours off as time went on. From the time of the operation to November 27 when the T tube was removed, there was always a frank flow of bile. At the time of its removal the liver had markedly reduced in size and the patient had

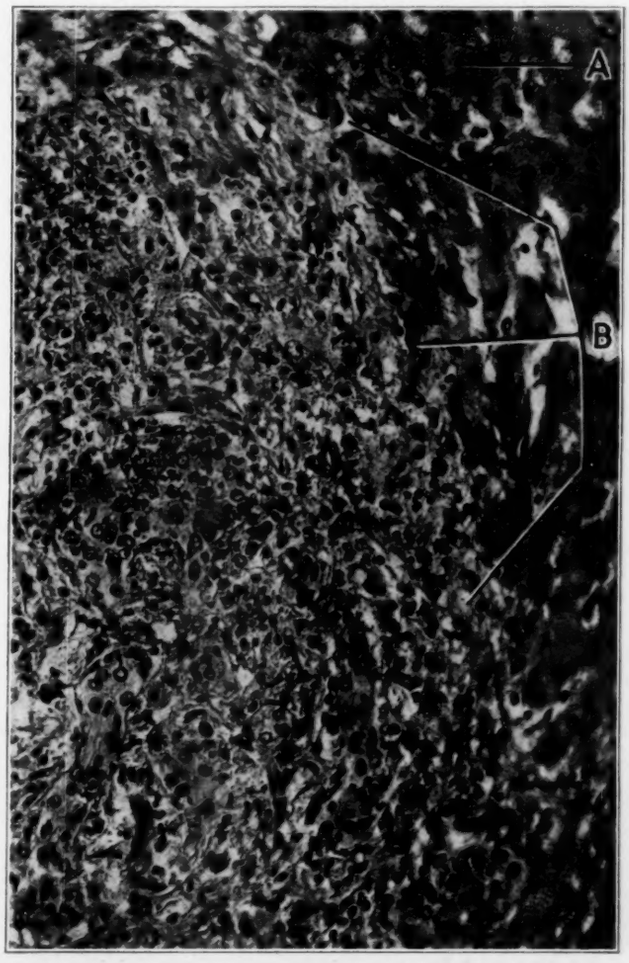


Fig. 2.—Section of liver tissue. *A*, normal liver tissue. *B*, edge of the area of necrosis which comprises all that is left of this, showing degeneration of liver cells and infiltration with polymorphonuclears, monocytes and fibroblasts.

gained strength to walk a little and was definitely on the way to recovery. During the convalescence and about three weeks after the operation diarrhea of acholic stools developed and he ceased to gain. The diarrhea mounted up to from ten to twenty stools a day with considerable urgency. At that time the liver rehabilitation program had been discontinued for about two weeks. A modified plan was then inaugurated, consisting of considerable amounts of dextrose, calcium, hydrochloric acid and increase of fluids by mouth. Within twenty-four hours of its institution the diarrhea was controlled far more effectively than it had been by bismuth and opium. The patient was seen December 18 in the office and was gaining weight and feeling quite well. Dextrose by mouth was being continued. A biliary fistula persisted, it being too soon to expect closure. March 16, 1937, the patient was perfectly well following no treatment during the last month. He has gained 42 pounds (19 Kg.) since he has been out of bed; the liver is not palpable and he is back at work, putting in full days.

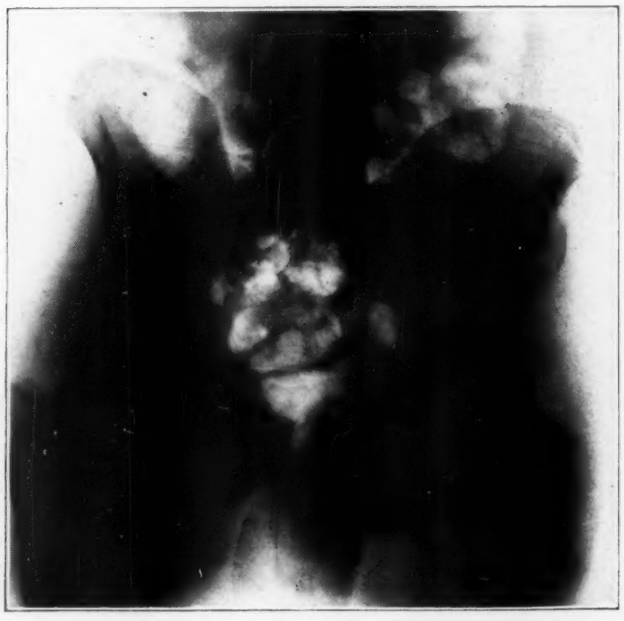
An interesting speculation now comes forward as to the possibility of a cirrhosis of the liver from the amount of fibrous tissue repair from the necrotic areas in the liver tissue and the periradicular inflammation as well as how much of a metabolic problem will be present in the months to come.

121 East Seventy-First Street.

FRACTURE OF THE ANTERIOR SUPERIOR SPINE OF THE ILIUM

VOIGT MOONEY, M.D., PITTSBURGH

Fracture of the anterior superior spine because of muscular violence is not frequent. With reports in the literature by Carp, Conwell, Christopher and several foreign writers, the number of cases had been brought up to fifty-eight.



Fracture of anterior superior spine of right ilium.

Searching the literature since Conwell and Alldredge's report,[1] I found no other reference in the literature, so I am reporting the fifty-ninth case.

W. H., a healthy Negro youth, aged 16, who was carried into the Allegheny General Hospital, May 25, 1936, complained of pain in the right side and inability to walk. He stated that while running down a hill he had experienced a sudden very sharp pain in the right side, which caused him to drop to the ground.

The patient was muscular and was in evident pain. The right thigh was held in the everted position. There was tenderness and crepitus over the anterior portion of the right ilium. Movements of the right hip and pelvis caused discomfort. X-ray examination revealed a fracture of the anterior superior spine of the right ilium.

I cut down on the fracture and replaced the loose fragment. A plaster-of-paris hip spica was applied with the thigh and knee flexed. Recovery was uneventful, the cast being removed at the end of six weeks.

A second case was that of a colored girl, aged 13 years, who participated in a track meet, May 25, 1937. About five minutes after running, she arose and found that she could not bear weight on the right leg. She was removed to the Allegheny General Hospital, Pittsburgh, Pa., where the examination showed that the right ilium and hip were tender to touch. All the hip movements, both active and passive, caused pain. X-ray examination of the right ilium revealed a fracture of the anterior superior spine.

8034 Jenkins Arcade Building.

1. Conwell, H. E., and Alldredge, R. H.: Am. J. Surg. **33**: 114 (July) 1936.

PENETRATION OF TISSUE BY FUEL OIL UNDER HIGH PRESSURE FROM DIESEL ENGINE

C. E. REES, M.D., SAN DIEGO, CALIF.

A recent query[1] in THE JOURNAL concerns injury resulting from the penetration of tissue by fuel oil from a Diesel engine. Since the reply indicates that no such cases have been reported in the medical literature, the present case report and discussion may be of interest.

A motor mechanic, aged 47, was testing the jet of a Diesel engine. He was holding the jet, which he had removed from a cylinder head, about 1 inch from the tip of his right middle finger when he tripped the valve. Oil was forced from the jet into the finger at a pressure which he estimated to be about 4,000 pounds. There was immediate slight bleeding from several points in the finger-tip and pain, which gradually became intense. When I first saw the patient twenty-four hours later opiates were necessary to relieve the pain. At this time the finger and hand were edematous, swollen and tense, and the epitrochlear and axillary lymph nodes were enlarged and tender. A round area of epidermis about 1 cm. in diameter at the end of the finger was loose and was removed. The tissue beneath the skin was a dusky red.

The patient was sent to the hospital, where the hand was elevated and hot compresses were applied. A blood count at this time revealed a hemoglobin concentration of 95 per cent, 4,500,000 erythrocytes and 11,500 leukocytes, of which 80 per cent were polymorphonuclears and 20 per cent small lymphocytes, and many poikilocytes. The urine was acid in reaction and contained many amorphous urates, from 4 to 8 leukocytes and an occasional red blood cell per high power field; there was no albumin and no sugar.

Fig. 1.—Epidermis of third finger denuded to first interphalangeal joint, showing dry gangrene. Area of destruction extends to darkened area in midpalmar space. Maceraton of remainder of hand due to wet packs.

The pain in the finger and in a triangular area in the palm and dorsum of the hand at the base of the middle finger persisted, but the pain and swelling in the remainder of the hand subsided somewhat. Within the next twenty-four hours the epidermis on the distal half of the finger loosened and was removed, and again a deep red color in the underlying tissue

From the Rees-Stealy Clinic.

1. Penetration of Tissue by Fuel Oil from Diesel Engine, queries and minor notes, J. A. M. A. **108**: 225-226 (Jan. 16) 1937.

was revealed. Dehydration of this area resulted in dry gangrene, which began at the tip of the finger and extended down to the first interphalangeal joint. The epidermal skin over the first phalanx and the base of the finger then loosened and the same dusky red that was seen at the tip of the finger before the onset of the gangrene was disclosed in the subjacent tissue.

Involvement of the bone was not demonstrable on the x-ray plate taken seven days after the injury. Exploratory incision

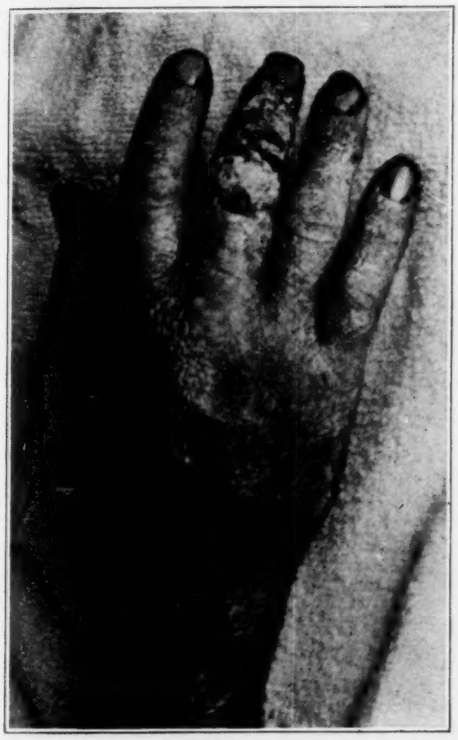


Fig. 2.—Dorsal view. Discoloration of nail of fourth finger due to former injury.

over the first phalanx at this time showed that all the tissue in this area had undergone liquefaction necrosis with secondary infection. A thick creamy pus was present in which an occasional gram-positive coccus was found. The tissue of the palm and dorsum of the hand at the base of the finger was of the same dusky red previously noted in the finger. Bleeding was very slight. The pain was still severe. During this time he had a gradually subsiding temperature range between 101.2 and 97 F.

It was decided to amputate the finger and remove if possible all the involved tissue. Amputation was performed through a palmar and dorsal wedge-shaped incision over the metacarpal bone. Dusky and edematous tissue with small pockets of pus extended into the midpalmar region. The metacarpal bone was sectioned in its middle third. Only the lateral digital artery required ligation. The wound was left open on the dorsal side and was closed by loose silkworm sutures on the palmar side. The swelling and pain in the remainder of the hand subsided immediately. There was considerable suppuration in the area of amputation following operation, and it was not until eight weeks later that healing was complete. When the patient was seen again, two years after his accident, the function of the remaining fingers was good.

COMMENT

The introduction of the use of high pressures in industry has led to a number of injuries which are unique to accidents caused by such pressures. The normal operation of certain types of Diesel engines adds a new agent which is capable of producing injury when misapplied. These engines differ in principle from the well known gasoline engines in that the fuel in the explosion chamber is ignited not by an electrical spark but by heat generated from compression of the mixture of fuel and air. The fuel is supplied directly into the cylinder of the engine, where it becomes mixed with air, compressed and fired. In one type of Diesel engine which uses the heavier fuels the oil is forced into the cylinder through a jet, where it is fragmented by air under very heavy pressure—from 1,200 to 5,000 pounds per square inch. Such pressure is capable of forcing fuel oil into tissue.

There are two types of oil used in Diesel engines. One is a light oil which is used in automotive engines, such as tractors, and the other is a heavy, less refined, oil which is used largely in marine engines. The light oil is composed of a multitude of hydrocarbons but has been considerably refined. The heavy oil contains a small amount of phenol, which is probably largely extracted from the light oil.

I have been informed that crude oil has been implanted in tissues through accident with apparently no more irritating effect than that of any other simple foreign body. It is quite conceivable, however, that the forcing of such material into tissue under pressure might cause a gangrenous condition even though the constituents are not particularly toxic.

A similar accident has been reported to me which occurred to a Japanese fisherman while at sea. My informant states that the finger was incised after the accident by a member of the crew and that it healed shortly thereafter without loss of finger or function.

From the little information I have been able to gather, it would seem that the severity of these accidents is dependent on the character and quantity of the oil and on the pressure under which it is introduced into the tissues. Conclusions cannot be drawn from experience with one case, but it is my impression that in an accident similar to the one reported, in which the local reaction is marked, early and liberal incisions over and into the area should be considered. Such incisions would allow the escape of the irritant, which apparently remains localized, and would relieve the edema, which is intense and may be destructive in itself if allowed to persist.

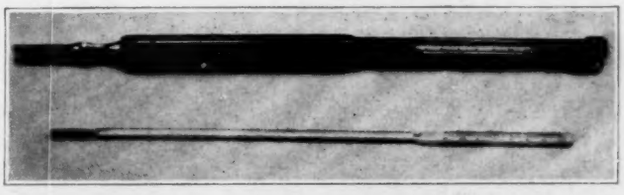
2001 Fourth Avenue.

AN INSTRUMENT FOR THE CONTINUOUS READING OF RECTAL TEMPERATURE

WILLIAM BIERMAN, M.D., NEW YORK

During the period of fever produced by physical means, it is essential that the systemic temperature be known at all times. This is best determined by observation of the temperature in the rectum. The most commonly used technic is the insertion of a clinical thermometer at short intervals. This procedure disturbs the patient and is tiresome to the attendant.

The use of a continuous recording device such as a resistance thermometer is of great value. It allows of continuous observation—which is very important in that it permits the careful modulation of the thermal energies applied so as to maintain



Continuous indicating rectal thermometer.

the desired temperature. Resistance thermometers have a time lag, require careful adjustment, are expensive, and occasionally get out of order. Thermocouple devices have similar objections.

A continuous indicating mercury thermometer permits visualization of the rectal temperature at all times. I employ a specially designed instrument 13½ inches in length and three-eighths inch in diameter. The last 4 inches of the thermometer is flattened so that the width of this part is about five-eighths inch. Etched lines on the flattened portion indicate temperature values in fifths of one degree F., subdivisions extending from 98 to 112 F. Prisms on each side of the mercury column in the flattened portion of the instrument magnify this column so that it can be read readily at a distance of several feet.

The thermometer has been placed in a special housing to protect it from breakage and yet permit of its easy reading. The first 3 inches of this housing is made of thin shell

aluminum designed so that the thermometer fits snugly into the metal casing. Metal is used so that the temperature of the tissue may be readily transmitted to the thermometer bulb. The remainder of the housing is made of hard rubber or of bakelite surrounding the thermometer except for a window to permit visualization of the figures in the flattened portion of the thermometer. This type of material interferes with the transmission of the heat of the fever cabinet to the more thermal receptive portion of the thermometer. About 2 inches from the tip, the metal portion is expanded into a small bulb which facilitates retention of the instrument in the rectum.

The device is kept in place by resting the portion that protrudes on a small pillow. If the patient turns, a simple adjustment is all that is required to keep the mercury in the line of vision.

471 Park Avenue.

Special Clinical Article

THE COMPLICATIONS OF PEPTIC ULCER AND THEIR TREATMENT

CLINICAL LECTURE AT ATLANTIC CITY SESSION

FRED H. KRUSE, M.D.
SAN FRANCISCO

As the usual complications of gastric and duodenal ulcer are not simple but are intimately interrelated, a brief consideration of their nature and treatment as a single problem is of value. Some of the complications that occur are not always preventable, such as hemorrhage in an arteriosclerotic subject, alkalosis in a subject with damaged kidneys, or sudden perforation in a subject with acute ulcer of infectious origin. However, most of the complications that arise represent a breakdown of medical control and management, partly the fault of the physician in not sufficiently educating his patient in the nature and dangers of his ulcer but primarily that of the patient in failing to follow his instructions rigidly. Most of the complications considered here occurred in patients who were previously under some form of medical treatment that had not been sufficiently heeded.

Fig. 1.—Organic and permanent obstruction.

The person with peptic ulcer must be educated as to the nature and permanence of his diathesis, just as the tuberculous and diabetic patient is taught to understand and care for himself. His instruction must include not only dietary requirements and certain specific medical procedures but self management and environmental control.

As to specific medical procedures, it is becoming more and more apparent that the newer therapeutic agents being used, such as histidine, foreign proteins (with or without lipoids and emetine), mucin, mercurials (as metaphen) and other corrosives and disinfectants have only a limited and occasional value in the treatment of peptic ulcer. On the other hand, the recent work in the development and treatment of experimentally produced peptic ulcers (Stalker, Bollman and Mann) demonstrating the efficacy of alkaline therapy encourages the attempts to control acidity as well as motor spasm and a generally hypertensive nervous system.

Fig. 2.—Organic obstruction, with active peristalsis, which yielded later to treatment of edema and congestion.

During the last ten years, from April 1927 to April 1937, 575 persons with peptic ulcer were admitted to the University of California Hospital. Of these, 399 had duodenal ulcer and 146 gastric ulcer, a ratio of about 3 to 1. Males numbered 441 and females 134, a proportion of 3.3 to 1. A slightly higher proportion of males had duodenal ulcer and a slightly higher proportion of females had gastric ulcer than is indicated by this ratio. Thirty patients, or 5 per cent, had gastrojejunal ulcer. The mortality in the hospital, as expressed by twenty-nine deaths to 575 entries, was 5 per cent. The main features of the 575 cases are summarized in table 1.

It has been estimated that from 20 to 25 per cent of patients who enter hospitals with peptic ulcer require surgical intervention. Over the ten year period 33 per cent of these patients were sent to operation, many more in the first five years than in the last five years, there being a distinct swing of late toward more prolonged and rigid medical treatment and a much more conservative selection of patients by surgeons for operation.

The most common complications, which I shall consider briefly, are given in table 2.

From the Medical Department of the University of California Medical School.
Read in the Medical Division of the General Scientific Meetings at the Eighty-Eighth Annual Session of the American Medical Association, Atlantic City, N. J., June 8, 1937.

INTRACTABILITY

In considering intractability, I shall be brief, for the subject is involved and exhaustive consideration would necessarily include a review of the various methods of treatment.

The intractable ulcer should be studied in detail. The type of ulcer, as to location and mechanical aspects, and any possible gain by further medical treatment should be considered. In some cases surgical aid alone offers hope. Systemic causes, such as focal infections, a diseased gallbladder, metabolic disturbances and allergic or deficiency states, should be investigated. Nervous factors, the wear and tear of life and the patient's mental outlook and psychologic make up should be taken into consideration. Most important by far is a careful analysis of the interval history and of the

Fig. 3.—Retention.

procedures the patient is following. This analysis will frequently reveal that failure of medical treatment has been due chiefly to a lack of intelligent and wholehearted cooperation on the part of the patient in the management and control of his condition. Only painstaking education, specific indication of errors in diet and in living habits and more frequent supervision by the physician can insure success.

HEMORRHAGE

In the University of California Hospital series of 575 cases of peptic ulcer recently reviewed, hemorrhages occurred in 28 per cent of the cases of duodenal ulcer and in 28 per cent of the cases of gastric ulcer; average, 28 per cent. Brown reported the incidence of hemorrhage as 25 per cent in 1,225 cases of peptic ulcer in which the Sippy treatment was used. Probably a truer incidence of hemorrhage to all ulcers would be nearer 10 per cent.

The mortality of gross hemorrhage has usually been estimated as 5 per cent in the statistics of this country; but Leon Goldman found a mortality of 10 per cent for 1,025 patients with peptic ulcer in the San Francisco Hospital, while Tage Christiansen of Denmark reported a mortality in most countries of 10 per cent or more. There seems to be a general agreement that persons over 40 with peptic hemorrhage are more likely to die than younger persons (a ratio of 8 to 1) and that twice as many males as females die.

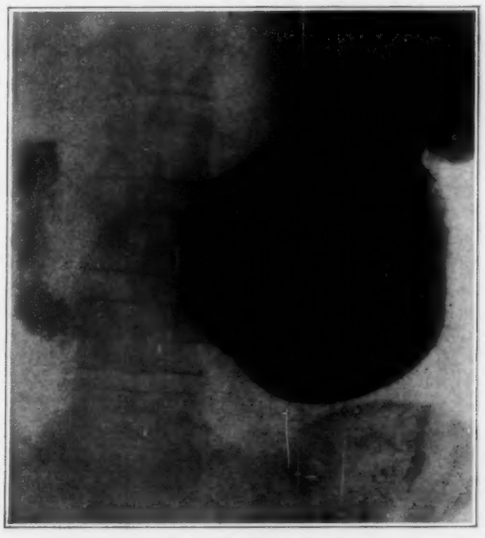


Fig. 4.—Obstruction that has yielded to lavage and medical management.

The hemoglobin level is an important factor in prognosis. When it is below 60 per cent the death rate is almost four times that when it is above 60 per cent. Arteriosclerosis is an important factor affecting the incidence and mortality of this condition. Two or more gross hemorrhages indicate the likelihood of recurrences and show an abrupt rise in mortality after the second hemorrhage.

Symptoms and Diagnosis.—When a chronic peptic ulcer bleeds, the source of the blood is generally a small blood vessel, most frequently an artery that has become eroded. In cases of massive hemorrhage, a ruptured vessel on the lesser curvature or posterior wall of the stomach or on the posterior wall of the duodenum is usually the cause. The tendency to bleed is frequently a characteristic of the individual patient due to early scurvy or a so-called bleeding diathesis not directly related to any demonstrable blood dyscrasia.

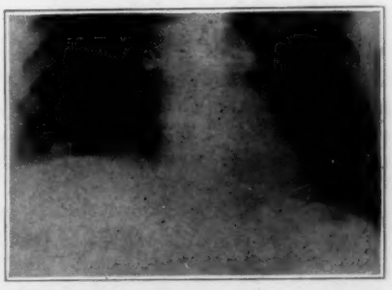


Fig. 5.—Air bubble under diaphragm in case of acute perforation.

The diagnosis is apparent when one notes either hematemesis or melena or both, pallor, rapid pulse, faintness, sweating and falling blood pressure. Hematemesis occurs only if the distention of the stomach caused by the hemorrhage is comparatively sudden. Owing to relief of local congestion, any pain present usually disappears as the bleeding becomes more profuse.

The initial result of hemorrhage is diminution of blood volume, which causes a sudden fall in blood pressure. As the hemorrhage ceases the blood pressure rises, and the blood plasma increases as a result of

absorption of water from the tissues, thus causing a fall in the hemoglobin content. The total loss of blood can, of course, be judged only by the percentage of hemoglobin when at length it reaches its lowest level. The cessation of bleeding and any recurrence can be determined by frequent reading of the blood pressure. A single severe hemorrhage may cause the hemoglobin content to drop to 60 or even 40 per cent, and if it is repeated the hemoglobin may drop to 20 per cent.

If the vomited blood is bright red and alkaline, it is a clear indication that the hemorrhage has been profuse and rapid; if it is dark brown, coffee ground material and acid, the bleeding has been less abundant and comparatively slow.

Faintness, thirst, vertigo, tinnitus, palpitation, tremor, coldness of the extremities, nausea and profuse sweating, with rapid pulse and pallor, complete the clinical picture. Temporary blindness in one or both eyes is a rare sequel of severe hemorrhage.

Only after very severe hemorrhage from rupture of a large vessel is death likely to occur as an immediate result, and this is indeed rare. In Goldman's series of patients who died of exsanguination, approximately twice as many had duodenal ulcer as had gastric ulcer.

Fig. 6.—Chronic perforation, with the perforating sac seen as *A*, a canal, *B*, a "bud" and *C*, a pouch.

Essential Considerations in Treatment.—Experience teaches that the treatment of moderate or even of extensive hemorrhage should be medical. The mortality from surgical intervention is high. Too frequently the surgeon cannot locate the bleeding vessel. An arteriosclerotic vessel can sometimes be found and closed successfully in the case of an old, chronic ulcer; or by cautery, excision or resection, when possible, the site of hemorrhage may be eradicated, although this is often impossible and recurrence of hemorrhage later ensues. With few exceptions, indication for surgery exists chiefly in the arteriosclerotic patient with recurring or persistent hemorrhage and in the person with a deeply penetrating ulcer on the posterior wall of the duodenum, eroding through a large arterial branch. Repeated recurrence and persistent oozing are indications for surgery if they continue in spite of proper medical treatment. In almost all cases bleeding will cease spontaneously without any treatment by drugs and will not be fatal. One must, however, consider the patient over 40 with more than two hemorrhages in the danger zone and decide whether or not he can stand another hemorrhage. The favorable time for surgical intervention is after the hemorrhage has ceased. A hemoglobin percentage below 60 indicates that a transfusion may be required; a percentage below 40 signifies that it ought to be performed at once. Except under these circumstances, the advisability of transfusion must depend on the indications in the particular case involved.

The management of severe hemorrhage complicating peptic ulcer is a subject commanding a great deal of attention and exciting a lot of controversy. The essential features of treatment, such as diet, starvation, intravenous and parenteral injection of fluids to combat dehydration, nitrogen retention and alkalosis and the use of transfusions, as well as the indications for surgical intervention, have been productive of a wide and positive difference of opinion among the leading authorities.

So confusing are the statements of proper procedure and management that it is well not to pin one's faith on any stereotyped method but with certain principles in mind to individualize the treatment according to the needs of the patient and the individual problem presented.

For instance, there has been considerable controversy about the dangers and advantages of blood transfusions in cases of peptic hemorrhage. Sippy taught that the intravenous administration of fluids might start hemorrhage anew and that it was even dangerous to take the blood pressure for fear of raising the systolic pressure. Most physicians have feared that transfusions, especially large ones, of 500 cc. or more, might increase the systolic pressure to such an extent, even up to normal or above, that further bleeding would be encouraged, since tarry stools are sometimes seen even after a blood transfusion of 500 cc. MacGuire, Unger and others expressed the opinion that such an occurrence is only a temporary condition and that blood added in large amounts is very beneficial to the patient. They questioned the benefit of small transfusions and discounted the dangers of the larger ones, claiming that the systolic pressure declines after repeated transfusions of whole blood, never coming up to normal, and is usually from 10 to 20 degrees below it. Such transfusions, they claimed, promote better clotting of the blood.

On the other hand, Christiansen (Scandinavia) said that in the past five years the mortality was almost twice that of the previous five years, despite the much wider use of blood transfusions. Eight of thirteen patients who had recently been given transfusions died. He expressed the belief that transfusions have not reduced the number of deaths from massive hemorrhage and have even contributed to its increase.

Usually no fluids are given and the patients are starved after peptic hemorrhage. The dangers of such a procedure have been clearly shown by the work of L. Meyler (Holland), which demonstrated that enormous toxic destruction of protein takes place after massive hemorrhage, with an accumulation of nitrogenous end products, thus elevating greatly the blood urea and nonprotein nitrogen content without lowering the blood chlorides or elevating the carbon dioxide content of the plasma, thereby indicating a condition of uremia and not of alkalosis. Unless the condition of dehydration is speedily corrected and balanced feeding instituted, death by uremia may follow.

TABLE 1.—*Complications of Peptic Ulcer: Cases Observed at the University of California Hospital from 1927 to 1937*

Peptic Ulcer	Number	Hemorrhage	Obstruction	Vomiting	Night Pain and Hypersecretion	Acute Perforation	Subacute and Chronic Perforation	Previous Surgery	Surgery	Alkalosis
Duodenal	399	113	204	160	218	8	65	48	110	Evidence noted in diagnosis since 1933
Gastric	146	42	77	60	40	11	22	17	66	
Gastro-Jejunal	30	7	12	12	12	2	5	30	13	
Total	575	162	293	232	270	21	92	95	189	
Average %		28	51	40	47	4	16	16	33	10

Aside from severe gross hemorrhage, one often has the problem of continuous small loss of blood or oozing. With the aid of a standard capillary fragility test used in investigating scurvy, it has been found that preclinical and even severe scurvy is frequently present but unrecognized in adults. This condition is often induced by food restrictions imposed in cases of peptic ulcer and colon disorder and is probably due to diets deficient in vitamin C. At first there is no gross evidence of scurvy, but later frank hemorrhage may occur from the gums and intestine and under the skin. Oozing of blood may occur, associated with changes in the smaller vessels and due to increased fragility of their walls. Crystalline vitamin C (cevitamic acid) and liver extract may be injected repeatedly in cases of peptic hemorrhage under such conditions.

Finally, much evidence is accumulating that the liver suffers severely in many cases of prolonged peptic ulceration and hemorrhage, so that the intravenous injection of small amounts of dextrose solution of from 25 per cent to 50 per cent concentration, for its protection, must be considered.

Medical Treatment.—In the light of the aforementioned known conditions and reasons apparently favoring certain procedures, a rational treatment for hemorrhage might be stated as follows:

1. Complete rest, quiet and immobility of the patient should be secured, enough morphine to keep him drowsy and to control restlessness being used.

2. Fluids should be given as soon as it is necessary to combat dehydration to get rid of toxic nitrogenous products. These may be given as physiologic solution of sodium chloride by hypodermoclysis or as this solution alternated with 4 per cent dextrose in 300 cc. rectal retention enemas, every four or six hours. Fluids by mouth as well as intravenously should be avoided at first unless a transfusion is indicated. Ice given by mouth is of no advantage. By the second day, intravenous injections of 50 cc. of from 20 per cent to 25 per cent dextrose solution may be given to maintain the liver glycogen.

3. Starvation for forty-eight hours at least, according to indications of control of the hemorrhage, would seem the safer course, particularly if the first two procedures are carried out. During this period the mouth should receive great care and the flow of saliva be kept free by having the patient chew a substance such as paraffin gum to avoid parotitis. The membranes of the mouth and throat should be kept moist.

4. Contraction of the stomach is desirable. If evidence of hemorrhage continues and it is suspected that food remnants or clotted blood are distending the stomach, a small tube may be put down from 16 to 20 inches (from 40 to 50 cm.) with the terminal end just inside the cardia, and repeated lavage with 120 cc. of ice water or with a 1 : 1,000 solution of ferric chloride, iced, may be carried out as indicated. From 4 to 12 cc. of a 1 : 1,000 solution of epinephrine may be left in the stomach.

5. The blood pressure, the hemoglobin content and the red blood cell count should be observed. A further fall in the blood pressure may indicate need for washing out the stomach.

6. Transfusion is usually unnecessary in the average case of hemorrhage. If the hemoglobin content reaches 60 per cent or below it must be considered, and it is imperative if there is doubt that the patient can survive another hemorrhage or if the hemoglobin reaches 40 per cent or below. To administer from 300 to 500 cc. of whole blood seems the most safe and conservative procedure unless there is very severe exsanguination, in which case 1,000 cc. should be given and a second transfusion in a day or two may be necessary.

7. The value of neutralizing the increasing acidity of the gastric contents to prevent irritation is apparent. Along with Sippy and Hurst, I myself like to use a powder composed of the tribasic calcium phosphates and magnesium phosphate. Beginning about the fourth or fifth hour from the start of the hemorrhage, 4 Gm. of this powder is given every hour when the patient is awake, until regular ulcer management can be instituted. A thick mucin solution given frequently by Levine tube has also been used with considerable success.

TABLE 2.—*Common Complications of Peptic Ulcer*

1. Intractability, due to: type of ulcer, systemic causes, nervous factors, failure of cooperation in treatment	
2. Hemorrhage	28%
3. Retention and obstruction	51%
(*a*) Functional: achalasia—spasm	
(*b*) Edema and congestion	
(*c*) Fibrosis and pyloric hypertrophy	
4. Hypersecretion and night pain	47%
5. Alkalosis	10% (?)
6. Acute perforation	4%
7. Subacute and chronic perforation	16%

8. For the immediate purpose of arresting hemorrhage, surgical intervention should be recommended but rarely. If it is indicated, the optimal time is after the patient has recovered from the immediate effects of the bleeding.

9. Feeding by mouth—when it should be begun, and how liberal the diet should be—creates much difference of opinion. The usual procedure has been to starve the patient for from three to five days and then cautiously to begin feedings with milk and cream, enlarging the diet with cereals, eggs, and purées slowly for several weeks.

The observation that dehydration and starvation may lead to serious kidney, liver and constitutional complications and the report of Meulengracht of Copenhagen of the treatment of 251 patients with hemorrhage by use of rest in bed and liberal diets from the first day, with only a 1 per cent mortality, as against the usual 5 or 10 per cent, should lead to a critical test of the wisdom of starvation, with its concomitants of exhaustion and anemia as its least serious aspects. Furthermore, Kellogg and Mettier have shown that anemia may persist after hemorrhage, owing to the alkalinization of the gastro-intestinal tract, with a modified Sippy regimen (interfering with utilization of dietary iron), unless large doses of inorganic iron are administered.

Certainly one must be alert to supply sufficient vitamins and the proper nutritional value to the diet as soon as safe. I still favor the conservative procedures but feel that their limits must be more accurately gaged.

ALKALOSIS

In the past, physicians have become more or less familiar with the picture of pyloric obstruction or obstruction of the upper part of the intestine accompanied by vomiting and evidence of renal insufficiency and with frequent culmination in attacks of so-called gastric tetany. Studies of the blood chemistry in such cases show a high plasma carbon dioxide combining power and nitrogen retention and a low content of blood chlorides. Albuminuria and a deficient phenolsulfonphthalein output complete the picture. This is alkalosis well established.

TABLE 3.—*Laboratory Evidence of Alkalosis*

Blood plasma carbon dioxide	High, 65 to 120 volumes per cent
Blood urea nitrogen	High, 20 to over 50 mg.
Blood nonprotein nitrogen	High, 40 to over 100 mg.
Serum sulfate	High
Blood chlorides	Low
Sulfate clearance	Low, 20 or below
Phenolsulfonphthalein excretion	Low
Urine—albumin and casts	

The loss of hydrochloric acid by persistent vomiting in cases of obstruction, or whatever else may lead to continuous vomiting, renal disease, hemorrhage, low salt intake, excessive perspiration, hepatic disease and excessive doses of alkalis can all impair the acid-base regulating mechanism. Persons with impaired renal function are invariably sensitive to small doses of alkalis. It seems probable that alkalosis can develop in persons with normal renal function only if one or more additional factors besides excessive intake of alkalis are present. Something happens to the chlorides of the blood, rendering them no longer available, and this leads to withdrawal of tissue chloride and fluid, with consequent degrees of dehydration. The onset of alkalosis appears to precede that of vomiting and may occur in its absence. The occurrence of tetany in cases of pyloric obstruction depends on the degree of alkalosis present; it generally occurs when the plasma carbon dioxide rises above 100 volumes per cent. The blood calcium content is sometimes slightly reduced, but the reduction is much less than that found in cases of infantile tetany, parathyroid tetany or tetany associated with chylous diarrhea.

When alkalosis develops in the course of intensive treatment with alkalis, symptoms may occur from the first to the fourteenth day, though they are generally noted from the fifth to the tenth day. Occasionally these symptoms disappear spontaneously. Anorexia and depression are the first to appear. A distaste for milk becomes evident. The patient shows irritability, introspection and nervousness and may often be considered neurotic. Headache, nausea and often severe vomiting follow. Dizziness and vertigo may be evident. Excessive dryness of the throat develops early although neither atropine nor belladonna is used. Aching pains in the muscles and joints are of common occurrence, with pruritus and dryness of the skin. Eventually the patient becomes apathetic and drowsy, and coma may develop. Weakness and prostration with profuse perspiration precede this stage. The laboratory evidence of alkalosis is summarized in table 3.

Treatment.—The treatment would appear to be obvious. Occasionally death ensues, but, as a rule, the symptoms never become very severe if recognized reasonably early, and they disappear rapidly when the administration of alkalis is discontinued.

1. All treatment with alkalis is stopped at once.
2. (*a*) Physiologic solution of sodium chloride is administered by hypodermoclysis, to supply fluids and chlorides. (*b*) Dextrose solution, 10 per cent, is given by vein, as indicated for vomiting and nutrition.
3. No food or fluid is given by mouth.
4. Stomach lavage is given every evening and often two or three times daily; this controls the degree of hypersecretion and overcomes dilatation.
5. Ammonium chloride is used as needed: 300 cc. of a 2 per cent solution by rectum every three or four hours or 10 or 12 Gm. by mouth.
6. The clinical signs and chemical status by the end of three of four days usually allow feeding again, possibly with emptying of the stomach at night.
7. The progress of the patient and the past history will determine then whether surgical treatment should follow or medical treatment with insoluble alkalis, such as tribasic calcium phosphate and magnesia or mucin, and dietary therapy.
8. In cases of alkalosis arising from the use of alkalis or in the presence of even a slight degree of renal disease, only the neutral or insoluble alkalis should be used.

RETENTION AND OBSTRUCTION

As judged by some form of retention of barium sulfate or food in the stomach beyond the normal time, 51 per cent of peptic ulcers show some obstructive characteristics, yet further analysis of these cases indicates that organic factors producing chronic obstruction exist in only about 20 per cent.

Obstruction in cases of peptic ulcer may be acute and temporary or chronic and prolonged. All grades of obstruction are produced by the varying factors of (1) spasm, (2) edema and inflammation or (3) the more permanent type of pyloric fibrosis and hypertrophy. The first of these factors, spasm, is functional and therefore curable; the second, edema and inflammation from an active ulcer, is organic but often curable medically; the third, pyloric fibrosis and hypertrophy, produces a stenosis that is organic and incurable, but while complete relief can be obtained only by surgical intervention, many patients obtain palliative relief by proper medical treatment and emptying the stomach by tube periodically. In some patients the stomach compensates for the narrowing at the pylorus, and with the healing of the ulcer and the subsidence of spasm they may have relatively little more trouble. I have under observation a considerable number of such patients, past 50, with gastric retentions averaging 50 per cent in six hours, who, unless they abuse their diet prescription, suffer no discomfort.

In cases in which compensation of the stomach fails or the degree of stenosis becomes too extreme, the fol-

lowing symptoms and signs develop: an increase in the cycles of pain, with night pain; hypersecretion, with vomiting; dilatation of the stomach; distress, nausea and emaciation, and toxic effects, due to alkalosis.

Treatment.—Patients in whom this syndrome develops should be placed at rest in a hospital. Evacuation of the stomach by tube, a dietary regimen and medical management should be instituted. As soluble alkalis may be contraindicated because of alkalosis, they should be used with great caution; the neutral or tribasic powders may be used instead. Under such therapy, with regular lavage at 10 p. m., the spasm is usually relieved; the edema and congestion disappear; gastric compensation is restored; the volume of evacuation at night drops from over 1,000 cc. to 200 cc. or less, and the patient may be restored to an ambulatory state.

If there is, however, a considerable degree of organic stenosis due to pyloric fibrosis and hypertrophy, while all the symptoms may be relieved the night volume of evacuation may remain large. The persistence of retention of a large quantity after ten days usually means marked obstruction. The patient must choose between continuing the regular emptying at night by stomach tube and submission to surgical treatment. Mechanical relief is advisable.

It is pertinent to point out here, however, that the degree or permanence of the obstruction cannot be determined by one x-ray examination. Only by repeated visualization after treatment and by noting the amount of the day's retention, after emptying the stomach at night, can one be certain of this. Retention alone is not evidence of organic obstruction, because lack of peristalsis may cause complete retention. Migraine headaches, worry and fatigue may stop peristalsis and cause such retention.

HYPERSECRETION

Hypersecretion, with its typical accompaniment of nocturnal pain and the duodenal syndrome, is practically always associated with the circumstances described in the discussion of obstruction. Duodenal ulcer and obstruction of some type are the usual causes; but now and then one encounters an unusually "hypertonic" person with marked peristalsis, a neurotic make-up and excessive pylorospasm who exhibits functional influences to a marked degree without much evidence of six hour retention of barium sulfate. In such a case, rest in bed, management of the ulcer, evacuation by tube at night and liberal use of derivatives of belladonna and sedatives are necessary for control.

PERFORATION

Peptic ulcers perforate or break through the parietal peritoneum in various ways. Perforations are designated acute, subacute or chronic. The first type is sudden and dramatic; the last is insidious and hardly recognizable clinically.

Acute Perforation.—Probably no other disease develops with such dramatic suddenness as does acute perforated ulcer. In the series of 575 cases of peptic ulcer there were twenty-one acute perforations, or 4 per cent. Acute perforated ulcer presents one of the most definite and classic clinical pictures in medicine. There is the first stage, shock, of one or two hours' duration, characterized by sudden agonizing abdominal pain and boardlike rigidity, immobility of the patient, vomiting, subnormal temperature and other signs of shock. The second stage, reaction, follows, lasting from two to twelve hours. The pain lessens, the pulse improves and the temperature comes back to normal, but the abdominal rigidity remains the same; tenderness increases, diminishing hepatic dulness and signs of pneumoperitoneum may be noted, and by x-ray examination an air bubble under the diaphragm may be discovered. The third stage, peritonitis, supervenes. There are a rapid, shallow pulse, fever, thirst and dehydration. Paralytic ileus with meteorism is evident. The hippocratic facies, cyanosis and lividity and other evidences of circulatory failure develop, and death follows in from two to five days. If the patient is first seen in the reactionary period, the signs may be confusing and the diagnosis difficult.

This outline summarizes the signs and symptoms from onset to general peritonitis unless surgical intervention is secured in the early hours of the catastrophe.

Vomiting is common with gastric perforation but occurs with only about 25 per cent of duodenal perforations. Pain often occurs at the top of one or both shoulders.

Immediate surgical intervention is imperative for such a condition, and the mortality should not exceed 5 per cent in patients operated on within eight hours of perforation. After eight hours the mortality rises rapidly.

The San Francisco Emergency Service considers these patients excellent risks if operated on within ten hours, irrespective of the type of anesthesia used. In a series of 155 patients, thirty-eight were operated on more than ten hours after the onset, with a gross mortality of 64 per cent.

Subacute Perforation.—In our series of 575 cases of ulcer, subacute and chronic perforation occurred in ninety-two, or 16 per cent. Although subacute perforation presents symptoms identical with those of acute perforation, they are less intense. The shock is less. The temperature is not subnormal. From the first the rigidity and tenderness are most marked in the neighborhood of the ulcer, and after some hours they generally become localized in the right upper quadrant, simulating the signs of acute inflammation of the gallbladder, for which the condition is often mistaken. No symptoms of general peritonitis develop, but a localized abscess may form later.

All this means, of course, that the perforation is protected. Generally it is at once plugged by a tag of omentum; or fibrin may begin to form outside the ulcer before perforation is complete, so that a protective layer is present to cover the hole as soon as it appears.

Usually if the patient is starved and kept quiet all the symptoms subside, and in twenty-four hours he is fairly comfortable, although local pain and tenderness and a certain amount of rigidity may persist for days and even continue until a local abscess is drained. If this is present it should be allowed to wall off first. It is usually best not to operate unless later developments indicate the need clearly.

Chronic Perforation.—Chronic perforation occurs only in cases of old, chronic ulcers, and it is often very difficult to tell whether one is dealing with only a deep crater or penetration into the wall of the viscus or whether the ulcer has completely passed through the organ, with a walled off perforation beyond.

Statistical figures show that there are about twice as many chronic as acute and subacute perforations of peptic ulcer. Probably from 8 to 12 per cent of all chronic ulcers develop into chronic perforation. These

perforations are located at the lesser curvature or near the pylorus, and are shown by x-ray examination as canals, buds or pouches.

The clinical picture is recognizable only as intractable or unimproved ulcer, although there may be slight evidence of some localized peritonitis or more rarely a deep abscess.

Roentgenograms are the only diagnostic resource with any degree of certainty; and even with them a deep crater or penetration without perforation is difficult to differentiate from actual slow perforation. In chronic perforation there is a leisurely destruction of the coats of the stomach or duodenum, and by the time the peritoneum is penetrated the site is protected by lymph, fibrin and adhesions, so that general peritonitis rarely occurs and only occasionally a subdiaphragmatic or other type of local abscess. The treatment is usually medical or whatever is needed for the type of chronic ulcer found.

I have never felt the size or location of a crater should be accepted categorically as an indication for or against surgical treatment rather than medical treatment. The merits of the situation must be studied individually, but I believe the axiom can be laid down that whatever the treatment for peptic ulcer the results, to be satisfactory, must afford complete relief of the symptoms in a short time and that if distress continues the procedures being followed immediately be challenged or disastrous progression will continue.

384 Post Street.

Council on Physical Therapy

THE COUNCIL ON PHYSICAL THERAPY HAS AUTHORIZED PUBLICATION OF THE FOLLOWING REPORT. HOWARD A. CARTER, Secretary.

BURDICK SWD MAGNETHERM ACCEPTABLE

Manufacturer: The Burdick Corporation, Milton, Wis.

The Burdick Magnetherm is a combination two-frequency short wave apparatus intended for medical and surgical diathermy. The 25 meter electromagnetic induction circuit is used with a 12 foot cable for medical purposes. A long wavelength, 70 meter, circuit is supplied for electrosurgical procedures such as cutting, coagulating, desiccating, and under-water cutting. It may also be utilized with metal electrodes for conventional diathermy. The unit is available without the 70 meter circuit. The cabinet is made of furniture steel with chrome-plated handles. The upper part of the Magnetherm may be lifted from the base to form a portable unit. The shipping weight is 150 pounds.

Burdick SWD Magnetherm.

The oscillator uses two large size tubes in a push-pull Hartley circuit. The plate voltage transformer has two balanced secondary coils providing full wave rectification of the 60 cycle line supply. A filament voltmeter is calibrated with a special dial to indicate the proper tap on the plate transformer to correspond to the prevailing line supply. It is tapped for line voltage variations from 105 to 125 volts. There is a separate transformer for filament supply and filament voltage. The latter is kept within proper limits, as indicated by filament meter, by means of a continuously variable control on panel.

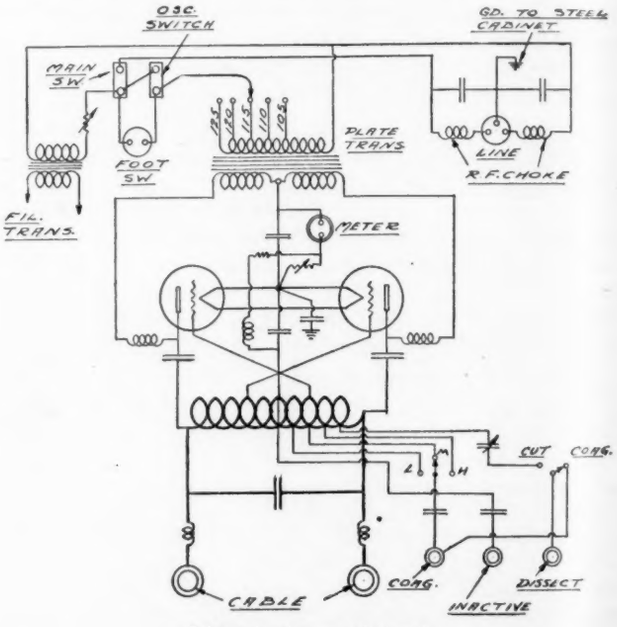
The surgical circuit has its own control panel with three outlets and controls, "Inactive," "Coagulation" and "Dissection." The coagulation current output is controlled by a switch giving three intensities of current.

The input, when the machine is operating at full output, is 870 watts, 94.5 per cent power factor at 115 volts. Since no reliable method has been devised for measuring output energy available to the patient, this value is not given.

It is licensed under patent Nos. 1,377,405; 1,452,339; 1,507,016; 1,507,017 by the Electrical Research Products Company.

The transformer temperature rise and the rise within the cabinet taken at various levels come within the limits of safety prescribed by the Council. Burns are possible with this unit as with any other short wave machine but may be avoided by the use of proper precautions.

The firm furnished evidence with regard to the heating ability of the unit when applied to the thigh of living subjects. A reliable investigator tested the Magnetherm with coil technic, making six observations to determine its ability to produce deep heat. Two vigorous male medical students, weighing 180 and 198 pounds respectively, were the subjects for the experiments. A trocar placed in a hard rubber cannula was inserted into the thigh, perpendicular to the femur and directed through the muscular layers for a depth of 2 inches or until the bone was encountered. The trocar was removed, the rubber cannula being left in place. Temperature measurements were then taken



Schematic diagram of circuit.

with a hypodermic needle thermocouple introduced through the cannula. A Leeds and Northrup Portable Potentiometer was used to measure the difference in temperature of the junctions. The thermocouples were calibrated in degrees Fahrenheit against a Bureau of Standards certified thermometer. Initial temperatures were taken and then each subject underwent a twenty-minute application of the maximum current intensity consonant with skin comfort. At the end of this period, readings were again taken until the temperature began to drop. The highest temperature was recorded as the final temperature in each instance. Oral temperatures were also recorded.

Averages of Six Observations, Coil Technic

Deep Muscle		Oral	
Initial	Final	Initial	Final
98.6	105.1	98.6	98.9

Four turns of the cable were wound around the thigh with a one-half inch thickness of felt for spacing and each coil approximately 2 inches from the adjacent one. The averages of the six tests are given.

The unit was tried out in a clinic acceptable to the Council. It was found to be satisfactory. It was also employed in various electrosurgical procedures and found to give efficient service.

In view of the favorable report on the Burdick SWD Magnetherm, both for general heating and for electrosurgical technics, the Council on Physical Therapy voted to include this unit in its list of accepted devices.

Council on Pharmacy and Chemistry

PRELIMINARY REPORT OF THE COUNCIL

THE LEDERLE LABORATORIES PRESENTED FOR THE COUNCIL'S CONSIDERATION ITS ANTIPNEUMOCOCCIC SERUM CONTAINING ANTIBODIES OF TYPES V AND VII PNEUMOCOCCI. AN ASSOCIATE OF THE COUNCIL'S REFEREE MADE A STUDY OF THE EVIDENCE, WHICH IS CONTAINED IN THE FOLLOWING STATEMENT. AS A RESULT OF THE ASSOCIATE'S STUDY, THE COUNCIL VOTED TO POSTPONE CONSIDERATION OF THE LEDERLE PRODUCT TO AWAIT DEVELOPMENT OF FURTHER CORROBORATIVE EVIDENCE. THE COUNCIL AUTHORIZED PUBLICATION OF THE FOLLOWING PRELIMINARY REPORT.

PAUL NICHOLAS LEECH, Secretary.

REFINED AND CONCENTRATED ANTIPNEUMOCOCCIC SERUM, TYPES V AND VII-LEDERLE

TYPE V

Finland and Tilghman[1] observed ninety-three cases of type V pneumococcus pneumonia in patients over 12 years of age from June 1, 1935, to July 1, 1936, the specific organism being identified in the sputum or by blood culture. Twenty-six of these patients were treated with serum varying in potency from 2,500 to 5,000 units per cubic centimeter, beginning in no case later than four days after onset, and four of those treated with serum died. During the same period sixty-seven cases were treated without serum because serum was not available, the disease was of more than four days' duration or there already was evidence of recovery, and of these patients not treated with serum twenty-six died. Of 130 patients not treated with serum during six years previous to the period of study, sixty-nine died. The mortality of the serum-treated patients was therefore approximately one-third that in those receiving no serum. Apparently even more significant was the favorable effect of the serum on the clinical course of the disease, since changes similar to those of spontaneous crisis seemed to follow serum treatment with fair regularity.

Bullowa and Wilcox[2] divided their cases into two groups, those observed from 1928 to 1933 and those observed from 1933 to 1936, the average unitage of the serum used in those periods being 782 and 3,163, respectively. In the earlier group the mortality in twenty-six cases treated with serum was three, and in 108 cases treated without serum it was twenty-three, while in the latter group the mortality in forty-one cases treated with serum was two, and in fifty-five cases treated without serum it was eleven. Of seventeen bacteremic patients treated with serum four died, while of forty-three bacteremic patients treated without serum twenty-six died. The mortality rate was therefore approximately half that of the controls in the earlier series and one fourth in the later series. The clinical observations indicated clearly that the duration and severity of the disease was lessened by serum treatment.

The combined mortality statistics of the two reports and more particularly the favorable effect on the clinical course of the disease indicate that type specific serum is a valuable therapeutic agent in the treatment of type V pneumonia.

TYPE VII

Finland, Ruegsegger, Dowling and Tilghman[3] observed 160 cases of pneumonia from Nov. 1, 1929, to June 30, 1936, in which type VII pneumococci were identified in the sputum. In sixty-seven of the cases type VII pneumococci were obtained from the lung, blood or pleural fluid as well as from the sputum and in thirty-eight of the remaining ninety-three cases in which the sputum was the only source of the pneumococcus a second specimen was positive usually one or more days later. Thirty of the 160 cases were treated with serum and three were fatal, while of the 130 cases treated without serum fifty were fatal. In cases in which recovery occurred, the mean duration of illness was five days when serum was used and eight days when it was not used.

The same authors[4] gave a more detailed analysis of the thirty serum-treated cases of this series and showed that definite clinical improvement consistently followed serum treatment except under well defined conditions. The three cases resulting in death were complicated, respectively, by (1) mastoiditis and late treatment (ninth day), (2) delirium tremens, pericarditis and cardiovascular syphilis, and (3) pulmonary tuberculosis. Immunologic studies indicated that a presumably significant balance of agglutinins and mouse protective substances was established and maintained in the blood of the patients by serum therapy.

Bullowa and Greenbaum[5] observed type VII pneumococcus pneumonia during the seven years 1928-1935 in 218 patients, of whom fifty-one were treated with serum. Excluding three fatalities because of complications from the group treated with serum and three fatalities for the same reason from the group treated without serum, 6.2 per cent died when serum treatment was used and 17.1 per cent when it was not used. Of the bacteremic patients, one died of four treated with serum and twelve died of seventeen treated without serum.

Although the mortality rates of the serum-treated cases are favorable, the alteration in the clinical course of the disease should be regarded as a more significant indication of the therapeutic value of specific serum in the treatment of type VII pneumococcus pneumonia.

COMMENT

Although the volume of information now available regarding the use of antipneumococcus serum types V and VII is, of course, much smaller than that for types I and II serums, the author's observations apparently have been made with care and the evidence is qualitatively approximately as favorable. As nearly as can be determined from the clinical response, the potency of the types V and VII serum used in these studies has reached a level comparable to that of types I and II serums now available commercially. The product has the disadvantage that serum reactions are encountered, but they apparently were not more frequent than have been encountered in the use of types I and II serums and were not of sufficient frequency and severity to contraindicate its use. On the whole, there apparently is reasonable evidence that types V and VII antipneumococcic serum are valuable therapeutic agents and that their value is comparable to serums now being used in the treatment of types I and II pneumonias.

1. Finland, Maxwell, and Tilghman, R. C.: Clinical and Immunological Observations in Cases of Pneumococcus Type V Pneumonia Treated with Specific Antibody, New England J. Med. **215**: 1211 (Dec. 24) 1936.

2. Bullowa, J. G. M., and Wilcox, Clare: Therapeutic Serum for Pneumococcus Type V (Cooper) Pneumonia, J. Clin. Investigation **15**: 711 (Nov.) 1936.

3. Finland, Maxwell; Ruegsegger, J. M.; Dowling, H. F., and Tilghman, R. C.: Infections with Pneumococcus Type VII, Am. J. M. Sc. **193**: 48 (Jan.) 1937.

4. Finland, Maxwell; Tilghman, R. C.; Ruegsegger, J. M., and Dowling, H. F.: Clinical and Immunological Observations in Cases of Pneumococcus Type VII Pneumonia Treated with Concentrated Type Specific Antibody, Am. J. M. Sc. **193**: 59 (Jan.) 1937.

5. Bullowa, J. G. M., and Greenbaum, Evelyn: Pneumonias Due to Pneumococcus Type VII (Cooper) and Specific Therapeutic Serum Treatment (unpublished).

NEW AND NONOFFICIAL REMEDIES

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION.

PAUL NICHOLAS LEECH, Secretary.

ANTIPNEUMOCOCCIC SERUM, TYPE I (See New and Nonofficial Remedies, 1937, p. 381).

E. R. Squibb & Sons, New York.

Antipneumococcic Serum, Type I (Refined and Concentrated).—An antipneumococcic serum prepared according to the method of Lloyd D. Felton. Marketed in syringes containing 10,000 units and in syringes containing 20,000 units of the type I pneumococcus.

CAFFEINE WITH SODIUM BENZOATE (See New and Nonofficial Remedies, 1937, p. 153).

The following dosage form has been accepted:

Ampoules Caffeine with Sodium Benzoate, 2 cc.: An aqueous solution containing in each 2 cc. caffeine with sodium benzoate U. S. P. 0.5 Gm. (7½ grains).

Prepared by Abbott Laboratories, North Chicago, Ill.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

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SATURDAY, SEPTEMBER 11, 1937

VENEREAL LYMPHOGRANULOMA

Since the etiology of the disease described by this title is distinctly and definitely venereal, the term venereal lymphogranuloma is to be preferred to the numerous other eponyms or descriptive names that have been applied. The most common of the latter, which should now be relegated into the background and should be of interest only from the historical point of view, are lymphogranuloma inguinale, syphilitic bubo, Durand, Nicolas and Favre disease, climatic bubo, nontuberculous granuloma, granulomatosis lymphatosis and tropical bubo. The avoidance of the confusion caused by this unnecessary multiplicity of terms is now especially important in view of the great extension of the disease, which is spread over every quarter of the globe and is found along the coasts of Africa, in the two continents of America and in Asia, as well as in Australia.

The disease is probably due to a virus, but the specific agent has not as yet been identified with any great certainty. The greater part of the detailed investigations on this subject have been, according to Hellerström,[1] without result. Several investigators have been able to demonstrate the presence of microorganisms—usually differing in character with each investigator. The bacteria which have been reported most frequently are the pseudodiphtheria bacilli. From the standpoint of animal experiments, the only result gained by the attempts to transmit the disease to animals is the certainty that venereal lymphogranuloma has nothing to do with tuberculosis. This aspect of the etiology, therefore, awaits definite proof. Certain it is, however, that the disease is truly venereal and is spread by sexual congress. The period of incubation before the appearance of the primary lesion has been estimated, according to Prehn,[2] at from three to seven days. In patients with a positive Frei reaction the period of incubation was from two to nine days. Frei and Hoffman, however, according to Hellerström, distinguish between two periods of incubation, the one extending from the time of the infecting coitus to the appearance of the primary lesion and the other from the coitus to the first demonstrable swelling of the lymphatic glands. The first of these periods, in Hellerström's cases, has varied from a few days to approximately three weeks but for the most part was about two weeks; the second averaged about two weeks and varied from about ten days to a month or even longer.

The pathologic anatomy of the disease as described by Hellerström, and based on twenty-eight of his forty-seven cases, is quite characteristic. Macroscopically, the extirpated glands consist of conglomerations, with the cut surface in many instances of a red to violet tinge. Abscesses are sometimes observed, even macroscopically. The microscopic examination of the glands discloses the picture of a subacute or subchronic lymphadenitis, a typical description of which, he states, is as follows: "The highly fibrously altered gland is larded with numerous larger or smaller, round, oval or ramified abscesses, surrounded by narrower or broader zones of epithelioid cells, frequently arranged in palisade form. . . . In addition, the gland is as good as completely filled with a granulation tissue consisting of lymphocytes, plasma cells, fibroblasts, epithelioids and fairly large cells, with one or two round or oval, highly colorable nuclei, together with a few medium large giant cells of Langhans type, which are usually situated at the edge of the border of epithelioid cells." Other descriptions conform in the main to that of Hellerström. Phylactos distinguishes four clinical types, a grouping which has been followed by Hellerström; namely, an ulcerous type, a nodular form, a papulous form and a specific urethritis. This classification is further modified by Wien and Perlstein,[3] who reported three cases which illustrated various types of clinical ulceration that may occur in venereal lymphogranuloma: ulceration of the skin only (lymphitis), ulceration of the skin secondary to a previous lymph gland involvement, and ulceration developing on an existing esthiomene. The general symptoms are almost constant and consist of fever, anorexia, emaciation and a feeling of general weakness. After the adenitis has existed for some time, the temperature is usually subfebrile.

The most valuable diagnostic and differential diagnostic sign is the Frei intracutaneous test. Qualified opinion is almost unanimous in accepting this procedure as a reliable diagnostic criterion, although there is some difference of opinion as to the most satisfactory antigen to use in the test.[4] Thus all of Hellerström's forty-seven patients reacted positively to Frei's test carried

1. Hellerström, Sven: A Contribution to the Knowledge of Lymphogranuloma Inguinale, Acta dermat.-venereol. supp. 1, 1929, pp. 5-224. Hellerström, Sven, and Wassén, E.: Epidemiology and Etiology of Lymphogranuloma Inguinale, Masson & Cie, 1934.

2. Prehn, D. T.: Lymphogranuloma Venereum and Associated Diseases, Arch. Dermat. & Syph. **35**: 231 (Feb.) 1937.

3. Wien, M. S., and Perlstein, M. O.: Ulcerative Lesions of the Skin in Lymphogranuloma Inguinale, J. A. M. A. **108**: 27 (Jan. 2) 1937.

4. Grace, A. W., and Suskind, Florence H.: Lymphogranuloma Inguinale, Arch. Dermat. & Syph. **34**: 65 (July) 1936; The Use of Standardized Mouse Brain Antigen, J. A. M. A. **107**: 1359 (Oct. 24) 1936. Howard, M. E., and Strauss, M. J.: Influence of Serum on Frei Test, Arch. Dermat. & Syph. **34**: 816 (Nov.) 1936.

out with seven different antigens. In more than 60 per cent of Hellerström's cases, the intracutaneous test was carried out within a period of from one week to two months after the adenitis had been observed. Since not all strumous buboes are venereal lymphogranuloma, the specificity of the Frei test is of exceptional importance.

Opinions with regard to therapy are numerous and conflicting. Since the disease has a considerable tendency to spontaneous healing, the results of treatment must be judged conservatively. Although many drugs have been used in treatment, the results as yet remain uncertain. Hellerström believes that the course of the disease can be shortened considerably by early operative measures aimed at total enucleation of the involved lymph glands. Various tartrates (Hellerström) and the intracutaneous administration of graded doses of potent Frei antigen every other day for at least eight doses injected near the site of the lymphadenitis [2] seem to offer the most promising of the nonsurgical treatments. Although the prognosis as to life is good, the usual lengthy course of the disease and the apparent increase of its incidence and distribution necessitate continued investigative effort aimed at more adequate control.

CERVICAL RIB AND SCALENUS ANTICUS SYNDROME

Descriptions of supernumerary cervical rib may be found in the writings of Galen and Vesalius. In 1860 Willshire described symptoms produced by the pressure of the cervical rib on the brachial plexus and the subclavian artery. Because the vertebral column in the embryo grows faster than the spinal cord, the nerves and plexuses issuing from the latter must assume an oblique course in order to reach the extremities. They thus interfere with the growth of the ribs. Consequently the ribs in the new-born come to be represented in the cervical region by the transverse processes of the vertebral bodies. The supernumerary cervical rib may therefore be regarded as a developmental anomaly. It springs as a rule from the seventh cervical vertebra but may occasionally arise from the sixth or the fifth. The rib may extend just beyond the transverse process of the vertebra or even touch the first rib; it may reach the cartilage of the first thoracic rib as a fibrous band or even as a true cartilage. If the rib attains sufficient length the brachial plexus and the subclavian artery may be compressed in the angle formed by the rib and the scalenus anticus muscle, giving rise to nervous and circulatory disturbances.

The incidence of cervical ribs is variably given as between 0.03 and 0.1 per cent. When they are present, from 67 to 80 per cent are bilateral. Two supernumerary ribs on the same side have been reported only three times. Adson and Coffey [1] state that cervical rib is found more often on the left side but that symptoms are more common on the right. The reason, they believe, is the greater use of the right arm, because the right plexus is in closer connection with the corresponding rib than the left, and because there is a greater drop of the right shoulder in right-handed persons. The classic clinical syndrome is met much oftener in women than in men. In reviewing the histories of a series of 540,413 patients registered at the Mayo Clinic between 1910 and 1926, Adson and Coffey found 303 cases in which cervical rib was diagnosed, an incidence of 0.056 per cent. There were eighty-four males and twenty-nine females. X-ray examination revealed a cervical rib on the right side in seventy, on the left in ninety-one, and bilaterally in 143. In 167 (55 per cent) the presence of cervical ribs was symptomless and was discovered accidentally. In 100 the symptoms were mild and of such a character that surgical treatment was inadvisable. Operation was performed in thirty-six cases. Among these there were eleven males and twenty-five females.

The most prominent symptom is pain, which may be felt in the shoulder, in the supraclavicular fossa or along the ulnar aspect of the forearm. When characteristic, it is aggravated by rotation of the head toward the affected side or by a downward pull of the shoulder. There may be various disturbances of sensation, such as hyperesthesia, paresthesia or anesthesia. Atrophy of the small muscles of the hand, of the ulnar or median type, may likewise be present. The nervous manifestations are those of involvement of the first thoracic and the seventh cervical roots and of the lower cord of the brachial plexus, although occasionally the entire brachial plexus may be involved. The circulatory disturbances are rarely severe and may be absent. The most characteristic sign of the compression of the subclavian artery is the diminution of the pulse volume on the affected side. Other vascular manifestations consist of decrease in surface temperature, numbness, coldness and formication, mild trophic changes in the tips of the fingers and, rarely, gangrene of one or more fingers.

A contribution to both the genesis of the symptoms and their surgical relief was made by Adson and Coffey [1] when they found that severance of the scalenus anticus muscle from its insertion into the rib caused immediate relief of pressure and irritation from the brachial plexus and the subclavian artery. They operated on four patients, dividing the tendinous attachment of the scalenus anticus muscle without removing the existing cervical rib. Symptoms were completely relieved in all instances. This demonstration of the importance of the scalenus anticus muscle accounts for the development of the symptoms in adults and its rarity in children. It also explains the greater frequency on the right side and the production of paresthesia and obliteration of the pulse at the wrist on elevation of the chin or extension or rotation of the neck toward the affected side.

1. Adson, A. W., and Coffey, J. R.: Cervical Rib, Ann. Surg. 85: 839 (June) 1927.

The fact that an identical syndrome of brachial plexus and subclavian artery compression occurs in the absence of a supernumerary cervical rib led many observers to believe that the anatomic relation of the first thoracic rib to the subclavian structures was responsible. Abnormally high position of the first rib with regard to the subclavian structures or abnormally low descent of the shoulder with a resulting pull on the plexus could furnish the mechanical conditions necessary. Thus Todd believes that the cervical rib syndrome occurs more frequently in females than in males because the descent of the shoulder is greater in the female, owing to lack of development of the suspensory muscles of the shoulder, especially the trapezius. The rectus abdominis muscle, being relatively poorly developed in the female, exerts less pull on the sternum, causing early high fixation of the anterior extremities of the clavicle and ribs. Jones believed that the symptoms occurred only in cases in which a considerable portion of the lower cord of the brachial plexus is derived from the upper thoracic segments of the cord, symptoms being due to compression and strangulation of these nerves over the first thoracic or cervical ribs. Naffziger, according to Ochsner, obtained complete relief in two cases with cervical rib syndrome without the rib by performing a scalenotomy as advocated by Adson and Coffey. Carrol reported two cases of cervical rib syndrome without cervical ribs and obtained complete relief of symptoms in one case by operation of scalenotomy. Ochsner, Gage and DeBakey [2] observed six cases with typical symptoms of compression of the brachial plexus and the subclavian artery in the absence of a cervical rib. All were in females. Four of the patients were operated on by resection of the lower portion of the scalenus anticus muscle, with complete relief. Ochsner suggests that the scalenus anticus syndrome is a definite clinical entity, the symptoms of which are identical with those of cervical rib. The symptoms are the result of compression of the brachial plexus and subclavian artery on the first thoracic rib. This compression may be due to abnormally low position of the shoulder, to high fixation of the sternum and ribs, to low origin of the brachial plexus and to elevation of the first thoracic rib due to spasm of the scalenus muscles, resulting from brachial plexus irritation. The first three conditions are predisposing, whereas the last is an exciting factor. The original contribution made by Ochsner is that irritation and stimulation of the brachial plexus by pressure of the first rib causes spasm and shortens the scalenus anticus muscle, resulting in elevation of the first rib, thus establishing a vicious circle.

Craig and Knepper [3] point out that resection of the scalenus anticus muscle will relieve symptoms in cases in which cervical ribs cannot be demonstrated and that in the presence of a cervical rib without tendinous attachment to the first rib scalenotomy is all that is necessary. Only in the cases in which there is evident pressure from the cervical rib or its tendinous attachment does removal of the rib become necessary. They report six cases requiring operative intervention for pressure symptoms, in three of which cervical ribs were not present, in two of which there were bilateral ribs, and in one of which there was a large right cervical rib. Relief from pressure on the subclavian structures in the first five was obtained by scalenotomy, while in the last case the cervical rib was removed because of the evident pressure on the brachial plexus and the subclavian artery.

2. Ochsner, A.; Gage, M., and DeBakey, M.: Scalenus Anticus (Naffziger) Syndrome, Am. J. Surg. **28**: 669 (June) 1935.

3. Craig, W. McK., and Knepper, P. A.: Cervical Rib and the Scalenus Anticus Syndrome, Ann. Surg. **105**: 556 (April) 1937.

Current Comment

SEED AND POLLEN SENSITIVITY

It seems evident from the recent studies of Farmer [1] that there is an organ-specific difference in plants from the point of view of allergic properties. He found that patients who were highly sensitive to aqueous extract of timothy, orchard grass or rye pollen often show no trace of cutaneous sensitivity with the aqueous extracts of the homologous seeds. Although at least half of the chromosomes are apparently identical in both pollen and seeds of the same plant, these observations suggest a complete divergence in protein specificity. Although Farmer has not formulated any biologic or chemical theory to account for this phenomenon, the observations are already of some practical clinical importance.

THE SEDIMENTATION RATE IN RHEUMATIC INFECTION

The urgent need for a reliable clinical method for determining the presence and degree of rheumatic infection in patients, particularly children, is generally recognized. As there is an increased rate of sedimentation of erythrocytes in certain severe infections, several investigators have studied the phenomenon in patients with rheumatic manifestations. The results of these studies, while suggestive, have not been convincing because of the lack of sufficient numbers of cases. Recently, however, the problem has been reinvestigated in a group of 140 children with rheumatic infection entering the Children's Memorial Hospital in Chicago.[1] At the time of admission the erythrocyte sedimentation rate and the complete blood count and Schilling differential count were determined by standard procedures. A general examination of the patient was also made, particular attention being paid to the detection of swollen or tender joints, annular erythema, cardiac damage and chorea. The results of the study, grouped according to the diagnosis, were rather striking. Chorea was the only rheumatic manifestation in which a normal sedimentation rate was found. Active rheumatic infection was characterized by a rapid sedimentation rate, this being equally true whether the arthritis or carditis

1. Farmer, Laurence: J. Allergy **8**: 338 (May) 1937.

1. Clifton, W. M.: The Rate of Sedimentation of the Erythrocytes in Rheumatic Infection in Children, Am. J. Dis. Child. **52**: 1093 (Nov.) 1936.

occurred alone or was accompanied by chorea. Acute pericarditis as a part of rheumatic carditis was accompanied by an extremely rapid sedimentation rate, and increased rates were observed also in patients with rheumatic nodules and with annular erythema during the period of activity of the infection. Only in cases of active rheumatic infection complicated with congestive heart failure and a resulting extreme degree of venous stasis was a normal sedimentation rate observed. Even in the normal subject, however, venous stasis tends to decrease the rate of erythrocyte sedimentation. In all instances there was a uniform decrease in the values toward normal with the subsidence of the infection and the disappearance of the clinical symptoms. The decrease in sedimentation velocity to normal, however, occurred two weeks or more after the clinical manifestations had disappeared, whereas the Schilling differential count tended to parallel the clinical course. For this reason the authors believe that the sedimentation test is more reliable than the Schilling differential count in determining the activity of the rheumatic process. These results add further support to the view that the rate of sedimentation of the erythrocyte may serve as a reliable diagnostic and prognostic measure in determining the activity of rheumatic infection.

GRANTS TO STATES UNDER TITLE V, SOCIAL SECURITY ACT

Under title V of the Social Security Act, federal grants are made available to the states for the conduct of maternal and child health work, services to crippled children, and child welfare services. The maternal and child health services are administered within the states by the several state boards of health, the crippled children's work by various state agencies according to the laws in the several states, and the child welfare services through state departments of social welfare. The United States Children's Bureau is charged with the administration of federal funds, the approval of state plans for their use, and the certification of payments to be made to the states under the act, through the United States Treasury Department. The Children's Bureau has furnished THE JOURNAL[1] with the following figures as to the actual grants to the states for the fiscal year ended June 30, 1937:

Grants to States

	Federal Funds Available *	States † Participating	Payments
Maternal and child health services	$4,379,849.40	51	$2,989,014.72
Services for crippled children	3,527,675.98	45	2,011,606.04
Child welfare services	1,823,017.08	45	969,827.23

* Including balances available from 1936 allotments.
† Including Alaska, the District of Columbia and Hawaii.
Since July 1, the Hawaii and South Carolina plans for child welfare services for the fiscal year 1938 have been approved, giving a total count of forty-seven participating in grants for child welfare services.

The figures given represent participation of forty-seven out of fifty-one state and territorial units entitled to federal subsidies under the program of child and maternal health, crippled children's services and child welfare authorized by the Social Security Act. Physicians whose practice is related to all the activities arising out of the expenditure of these funds should keep well informed through state and local medical societies. The Children's Bureau has expressed frequently the desire to have the counsel of the medical profession. A general advisory committee to the Children's Bureau includes many physicians, and an official representative of the American Medical Association.

1. Lenroot, Katherine L.: Unpublished communications Aug. 14 and Aug. 23, 1937.

THE NATURE OF FATIGUE

Collier[1] provisionally defines fatigue as a state of the human organism in which there is a significant lack of balance between intake and output of biologic energy. This absence of harmony may exist between the organism and its environment or between the various subordinate parts within the organism itself. It is frequently manifested by deterioration of efficiency, feelings of tiredness, physiologic changes in the bodily organism (pulse rate, pulse pressure and so on) or as combinations of all these. It is not a disease, but it may be prodromal to disease. The human organism, he says, begins to suffer from fatigue whenever the available reserves required for any particular kind of activity have become dangerously depleted. The degree of the exhaustion of the reserves of energy of a part or the whole of the organism may be so profound that a brief rest serves only partially to restore those reserves. It is clear, however, that chronic morbid fatigue, even when it occurs among industrial workers, is not always due to the industrial activity. Neither illness nor fatigue is ever due to single isolated causes, but both are the outcome of a number of causes acting together. The diagnosis of morbid industrial fatigue is suspected by the experienced practitioner when faced with a patient who looks tired, whose eyes are heavy, who yawns, whose shoulders droop, who moves slowly and whose complexion is pallid. The individual usually complains of tiredness in the morning, saying that he sleeps heavily but is unrefreshed. The patient frequently suffers from headache and complains of vague pains in some part of his body. Differential diagnosis must take into account and exclude illness, normal tiredness and learning fatigue. After exclusion of these other disorders, if inquiry fails to reveal any reasonable explanation of fatigue from which the patient is suffering because of personal factors, a tentative diagnosis of industrial fatigue may be made. As soon as this diagnosis has been made it is necessary to be able to discover the actual (industrial) cause or causes of the fatigue in the particular group of workers. The latter may be roughly classified into conditions within the factory, composed of physical causes such as temperature, humidity, hours of work and exposure to industrial poisons, or to emotional components such as monotony of work, group harmony and psychologic fitness. Furthermore, industrial conditions operating largely outside the factory must be studied, including the regularity and adequacy of meals, the selection of personnel, night work and traveling to and from work. The problem of industrial fatigue is as important as it is complex. It requires an impartial scientific study in all its aspects by a team of trained specialists. Thus only will it be possible to abolish morbid fatigue from industry.

1. Collier, H. E.: The Recognition of Fatigue, with Special Reference to the Clinical Diagnosis of Morbid Fatigue in Industry, Brit M. J. 2: 1322 (Dec. 26) 1936.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION AND PUBLIC HEALTH.)

ALABAMA

Health Department Activities.—A full time health department has been organized in Choctaw County with Dr. Herbert A. McClure, Double Springs, as health officer. Dr. McClure has been health officer in Winston County and has been succeeded in this post by Dr. Thomas T. Box, Double Springs. Choctaw is the fifty-ninth county in the state to establish a local health unit, leaving only eight unorganized counties, newspapers reported. Dr. Albert S. Dix, Mobile, has been named health officer of Jackson County, succeeding Dr. George E. Newton, formerly of Scottsboro, who was appointed to a similar position in Lauderdale County. Dr. George E. Maddison, Moncton, N. B., has been appointed health officer of Monroe County, following the resignation of Dr. Martle F. Parker, Boaz, to begin the private practice of medicine. Dr. Elihu F. Sloan, Shannon, has been appointed in Shelby County, succeeding Dr. Hugh C. Nickson, formerly of Columbiana, who also resigned to enter private practice. Dr. Thomas M. Towns, Clarence, has been appointed health officer of Blount County, succeeding Dr. Samuel D. Sturkie, Oneonta, who accepted a similar position in Calhoun County.

CALIFORNIA

Syphilis Survey of Volunteer Citizens.—A serologic survey of 500 volunteer citizens was conducted by the San Francisco Department of Health, August 18, to determine the extent of syphilis in the city. For diagnosis only, the tests were conducted at the Central, Park, Harbor, Mission and Alemany emergency hospitals. Results of the tests will be reported later, the San Francisco *Bulletin* announced.

Course on Venereal Diseases.—A special course on the handling of venereal diseases was begun at the University of California Medical Center, San Francisco, August 23, to continue for five weeks. It consists of ten sessions, the first two sessions devoted to bacteriology and pathology, the next three to the pharmacology of the drugs concerned, the next four to the practical clinical management and the final session to the public health aspects of the problem. There is no charge for the course, which is open to any qualified physician.

COLORADO

State Medical Meeting at Colorado Springs.—The sixty-seventh annual session of the Colorado State Medical Society will be held at the Antlers Hotel, Colorado Springs, September 22-25, under the presidency of Dr. Arthur J. Markley, Denver. The program includes the following speakers:

Dr. James P. Rigg, Grand Junction, Nasal Hemorrhage: Its Cause and Treatment.
Dr. Roderick J. McDonald Jr., Denver, Erysipelas.
Dr. John R. Evans, Denver, Short Wave Therapy in the Pelvis.
Dr. Clyde T. Knuckey, Lamar, Respiratory Problems in the "Dust Bowl."
Dr. Alfred R. Masten, Denver, Tuberculosis Control in Colorado.
Dr. Wilford W. Barber, Denver, Modern Infant Feeding.
Dr. Guy H. Hopkins, Pueblo, Reading Defects in Children.
Dr. Clifford Lee Wilmoth, Denver, Inguinal Hernia.
Dr. Gerrit Heusinkveld, Denver, Some Toxemias of Late Pregnancy.
Dr. William P. McCrossin Jr., Colorado Springs, Treatment of Pelvic Infections.
Dr. Thomas Leon Howard, Denver, Present Status of Urinary Bactericides.
Dr. Joseph Raymond Plank, Denver, Treatment of Intestinal Obstruction: Its Chemistry and Physiology.
Dr. Kenneth D. A. Allen, Denver, Radiation Therapy of Selected Nonmalignant Diseases.
Drs. James J. Waring and William A. H. Rettberg, Denver, Sulfanilamide: Clinical Trials.
Dr. Douglas W. Macomber, Denver, Recent Developments in Plastic Surgery.
Dr. Casper F. Hegner, Denver, Practical Approach to the Cancer Problem.
Dr. Roy L. Cleere, Denver, The Changing Concept of Public Health.
Dr. Ralph H. Verploeg, Denver, Differentiation of the Rash-Producing Epidemic Diseases.
Dr. James Rudolph Jaeger, Denver, Intervertebral Disk Injury: Its Relation to Sciatica and Intervertebral Neuralgias.

A clinicopathologic conference will be conducted by the El Paso County Medical Society and guest speakers will include Dr. Walter M. Simpson, Dayton, Ohio, on "Fever Therapy"; Reuben G. Gustavson, Ph.D., Denver, "The Influence of Endocrine Secretions on the Etiology of Cancer," and Dr. Arno B. Luckhardt, Chicago, "Academic or Unsuccessful Research." The guest speakers will also conduct round table discussions. At the annual banquet, Saturday evening, Hon. Haslett P. Burke, chief justice, supreme court of Colorado, will give an address entitled "A String of Pearls."

DISTRICT OF COLUMBIA

Annual Alumni Extension Course.—The second annual alumni extension course of Georgetown University School of Medicine will be held September 13-17 at the university, Washington. There will be general sessions and clinics in various branches of medicine and the specialties. Guest speakers will include:

Dr. Maurice C. Pincoffs, professor of medicine, University of Maryland School of Medicine, Baltimore.
Dr. Irving S. Wright, assistant professor of clinical medicine, New York Post-Graduate Medical School and Hospital, New York.
Dr. Irvine H. Page, Rockefeller Institute for Medical Research, New York.
Dr. Sanford M. Rosenthal, National Institute of Health, Washington.

A feature of the course on obstetrics will be an address by Dr. Emil Novak, associate professor of obstetrics, University of Maryland School of Medicine, Baltimore, entitled "Endocrinology as Related to Obstetrics and Gynecology." Entertainment will include the annual banquet and golf tournament.

FLORIDA

Malaria Study Course.—A course for malaria study opened August 2 at the Florida State College, Tallahassee, for public health workers and engineers, newspapers announce. Said to be the first of its kind ever given in the United States, the course is one of four being conducted in different parts of the country by the U. S. Public Health Service. In Tallahassee it is given in cooperation with the station for malaria research, which has been maintained on the state college campus for six years by the Rockefeller Foundation and the state board of health. According to the report, other parts of the instruction are offered at the Henry Carter Memorial Laboratory, Savannah, Ga.; the U. S. Bureau of Entomology Laboratory, Orlando, and the Tennessee Valley Authority, Wilson Dam, Ala. Dr. Louis L. Williams Jr., Washington, D. C., is in immediate charge; Dr. Mark F. Boyd, director of the malaria research station, local supervisor, and Dr. Charles M. McGill, U. S. Public Health Service, administrative officer in charge of students. The course will continue through September.

GEORGIA

Personal.—Dr. Thomas F. Abercrombie, Atlanta, was guest of honor at a dinner at the Capital City Club, August 11, to celebrate his completion of twenty years as state health officer. He was presented with a gold watch by the assistant state health officer, on behalf of the staff of the health department. ——Dr. Thomas O. Vinson, Macon, formerly assistant health officer in Bibb County, has been appointed health officer of Spalding County.

New Cancer Facilities.—A new clinic for the treatment of cancer has been made possible at Emory University Hospital, Emory University, by a recent donation, newspapers report. It covers the ground floor of one wing of the hospital and is equipped with the latest facilities in the treatment of cancer. Dr. James Elliott Scarborough Jr., formerly of Mount Willing, Ala., is director of the new clinic, which, under the terms of the gift, will be a memorial to the late Robert Winship, an Atlanta business man.

IOWA

District Meeting.—The first meeting of the combined Austin Flint-Cedar Valley Medical Society and the societies of the first, second and sixth districts of the Iowa State Medical Society was held at the Cedar Valley Hospital, Charles City, September 9. The following program was presented:

Dr. Harold C. Habein, Rochester, Minn., Indications and Use of Sulfanilamide.
Dr. Mynie G. Peterman, Milwaukee, Convulsions in Childhood.
Dr. Elmer L. Sevringhaus, Madison, Wis., Practical Endocrinology.
Dr. Jacob R. Buchbinder, Chicago, Address in Surgery.

KANSAS

Society News.—A new county medical society has been organized in Barber County with Dr. Joseph D. Warrick, Kiowa, as president and Dr. Kenneth R. Grigsby, Medicine Lodge, secretary.——Dr. Victor E. Chesky, Halstead, among others, addressed the Golden Belt Medical Society in Manhattan, July 1, on "The Heart in Relation to Thyroid Diseases."

State Ophthalmologist Appointed.—Dr. Clifford J. Mullen, Kansas City, has been appointed state ophthalmologist for the Kansas Social Welfare Board. According to the state medical journal, this office, which is required by the federal social welfare board, will be part time and will consist mainly of administrative activities in the handling of assistance to the blind under the social security act. Dr. Mullen graduated from Creighton University School of Medicine, Omaha, in 1923 and has practiced in Kansas City since 1930. He served as secretary of the Wyandotte County Medical Society in 1936.

KENTUCKY

State Medical Meeting at Richmond September 13-16.—The annual meeting of the Kentucky State Medical Association will be held in Richmond, September 13-16, at the Eastern Kentucky State Teachers' College. Drs. Irvin Abell, Louisville, President-Elect of the American Medical Association, and Arthur T. McCormack, Louisville, president of the American Public Health Association, will be the guests of honor at the annual banquet Wednesday evening, at which Dr. Henry W. Cave, New York, will be the guest speaker. Dr. Cave will give an address on "Chronic Ulcerative Colitis, with Special Reference to Surgical Management." Dr. James A. Ryan, Covington, will deliver the annual oration in surgery and Dr. Asa W. Nickell, Louisville, the oration in medicine. Among Kentucky physicians who will appear on the program are:

Dr. Morris Flexner, Louisville, Sulfanilamide.
Dr. Charles N. Kavanaugh, Lexington, The Rôle of the Electrocardiograph in Cardiac Infarction.
Dr. Adolphus D. Butterworth, Murray, Management of Eclampsia.
Dr. John MacMillan Townsend, Louisville, Present Trends in Prostatectomy.
Dr. Elmer L. Henderson, Louisville, Some Observations in Abdominal Surgery.
Dr. Marion C. Spradlin, Somerset, Management of the Acute Diarrheas.
Dr. William Clark Bailey, Harlan, Doctors and Their Relation to Malpractice Groups.
Dr. William B. Atkinson, Campbellsville, Where Private Practice Ends and Public Health Begins.

LOUISIANA

Dr. D'Aunoy Appointed Dean at Louisiana Medical Center.—Dr. Joseph Rigney D'Aunoy, professor of pathology and bacteriology, Louisiana State University Medical Center, and executive adviser, Charity Hospital, New Orleans, has been appointed dean, succeeding Dr. Arthur Vidrine, resigned. Dr. D'Aunoy graduated at Tulane University of Louisiana School of Medicine, New Orleans, in 1913. In 1933 he was awarded an honorary fellowship by the Gorgas Medical Society of New Orleans for his work on electrocardiography. In 1931, three years after he had been appointed superintendent of Charity Hospital, New Orleans, Dr. Vidrine was made dean of the newly organized school of medicine of Louisiana State University. In 1936 he resigned his post at Charity Hospital to devote his full time to the medical school, where he was also professor of surgery. He graduated at Tulane in 1921. He will remain as professor of gynecology at the medical center.

MARYLAND

First State Owned Hospital for Negroes.—The dedication of a group of three buildings for the care of feebleminded Negro children took place in Crownsville, Anne Arundel County, July 23. Erected at a cost of about $283,000, the hospital is said to be the first state owned institution of its kind in Maryland. Equipped with 100 beds, half for boys and half for girls, the buildings were laid out so as to facilitate enlargement to care for 500 children. They are of the cottage dormitory type, connected by covered corridors. The unit is about half a mile from the Crownsville Hospital, the superintendent of which, Dr. Robert P. Winterode, is head of the division for feebleminded children. Twenty children were admitted July 26.

MASSACHUSETTS

New Surgical Building Completed.—The new Dr. John J. Dowling Surgical Operating and Ward Building at the Boston City Hospital, named in honor of the late superintendent, was to be opened to patients the latter part of August. The ten story structure at the corner of Albany Street and Massachusetts Avenue, cost about $1,300,000, will accommodate 300 patients. It contains twenty operating rooms: six on the seventh and eighth floors; one for eye operations on the second floor; two for first aid operations on the ground floor, and the remaining ones for tonsil and adenoid, mastoid and x-ray operations. There are ten examining rooms, ten sixteen bed wards, and the remaining wards are divided into two and four bed wards. The amphitheater for lectures and meetings will accommodate 264 students. The building was begun two and one-half years ago, it was reported, and was made possible with the assistance of a PWA grant. At the time of his death, July 10, 1935, Dr. Dowling was medical director and superintendent of the Boston City Hospital.

MINNESOTA

Society News.—Dr. Roger L. J. Kennedy, Rochester, was elected president of the Northwestern Pediatric Society of Minnesota, August 21, at its annual meeting in Duluth, and Dr. Robert Rosenthal, St. Paul, secretary-treasurer. Dr. John M. Adams, Minneapolis, addressed the society on "The Conservative Treatment of Appendiceal Peritonitis in Children."

Personal.—Dr. Francis E. Harrington, health commissioner of Minneapolis, has been appointed a member of the Hennepin County Sanatorium Commission, succeeding Dr. Solon Marx White. Recently newspapers reported that Dr. Harrington had resigned as director of hygiene of Minneapolis schools and that Dr. Malvin J. Nydahl had been appointed to succeed him (THE JOURNAL, July 24, p. 282). Later reports indicate that Dr. Harrington will continue in this position and that Dr. Nydahl will be assistant director.

NEW JERSEY

Maternal Welfare Program.—The committee on maternal welfare of the Medical Society of New Jersey, in cooperation with the state department of health, has announced its program for 1937-1938. According to the plans, a field physician will be appointed in every county and adequate provision will be made for antepartum care and for hospitalization. Hospitals are to be open to general practitioners to attend their own cases subject to supervision by an obstetric staff and with rules for consultation in abnormal cases. The committee recommends regular conferences of maternal welfare groups with all physicians interested in obstetrics; this year the committee will on request send an experienced obstetrician to lead discussion at these conferences. It also urges investigation of every maternal death to check the diagnosis and cause of death. Free nursing delivery service and free consultation for the low wage group of patients and free consultation for midwives are also to be furnished. Other points in the program are refresher courses for physicians, a maternal welfare article each month in the state medical journal and continuation of statistical studies. Dr. Arthur W. Bingham, East Orange, is chairman of the committee.

NEW MEXICO

Fluorine Study.—The state department of health and the chemistry department of the University of New Mexico are conducting a study of municipal water supplies for the presence of fluorine. Mottled enamel of the teeth, believed to be the result of drinking water containing fluorine, is known to exist in certain areas of the state.

Changes in State Health Department.—Dr. Elroy F. McIntyre, Santa Fe, has been appointed state epidemiologist to succeed Dr. Leonard A. Dewey, who resigned to become state epidemiologist of Washington. Dr. Frank W. Parker Jr., formerly of Clovis, succeeded Dr. McIntyre as health officer of the first district. A division of health education has been established in the department under the direction of Mr. Charles M. Cree.

NEW YORK

Interstate Meeting at Chautauqua.—The Medical Society of Chautauqua County sponsored the sixth annual Interstate Medical Meeting at Chautauqua July 28. At the morning meeting there were addresses by Drs. Winfield W. Scott, Rochester, on "Hematuria: Its Significance"; Russell L. Cecil, New York, "Influenza and the Common Cold," and Walter C. Alvarez, Rochester, Minn., "Abdominal Pain." In the afternoon the meeting was open to the public. Dr. Cecil spoke on "The Plight of the Arthritic" and Dr. Alvarez on "Nervous Indigestion."

Air Conditioning Test for Allergic Patients.—A practical study of the effects of air conditioning on allergic conditions of the respiratory tract has been arranged by the chairman of the committee on public health of the Medical Society of the County of Erie. Three rooms of a model home on the main floor of the Electric Building, Buffalo, conditioned to a degree that pollen is almost entirely removed from the air, will be used for the study, which will last six weeks, coinciding with the hay fever season. The rooms will accommodate twelve patients, and nurses and attendants will be present. Applications of patients must be accompanied by a written recommen-

dation from the physician, limited to members of the society, and the patient agrees to report back to the family physician. A report will be presented at the October meeting of the society.

Court Decides Pledge to Hospital Must Be Paid.—Payment of a pledge of $7,200 made in 1929 to the Tioga County General Hospital, Waverly, was ordered in a decision by Supreme Court Justice Andrew J. McNaught, August 18. The decision held that there had been no misrepresentation in the solicitation of the subscription, as the defense had contended; that there was a consideration for the promise to pay, the consideration being that an x-ray room be constructed in memory of the donor's father; that there was a sufficient note or memorandum of the promise in the subscription card and the endorsement thereon, and that the hospital had a sufficient interest in and was in possession of the obligation on which the action was based to maintain its position and was a real party in interest. The record indicated that the donor canceled his subscription at the solicitation of another hospital, the judge's decision stated.

Society News.—Drs. David M. Kydd and John H. Powers, Cooperstown, addressed the Otsego County Medical Society, Oneonta, recently, on "The Use of Protamine Insulin" and "Mandelic Acid in the Treatment of Infection of the Urinary Tract" respectively.——Dr. Joseph H. Green, Rochester, addressed the Canandaigua Medical Society, recently on "Differential Diagnosis of Chest Conditions by X-Ray."——At a joint meeting of the Wayne County bar and medical societies in Newark, June 22, Dr. Floyd S. Winslow, Rochester, spoke on malpractice.——At a recent meeting of the Orange County Medical Society in Newburgh the speakers were Drs. Harold H. Snyder, Newburgh, on "Tuberculosis of the Genito-Urinary Tract"; Ian G. Macdonald, Cornwall, "Tumors of the Neck" and David Tolmie, Tuxedo Park, "Amnesia-Analgesia in Labor."——Speakers at a meeting of the Medical Society of Washington County in Fort Ann July 6 included Dr. Harold A. Peck, Glens Falls, on "The Friedman Modification of the Aschheim-Zondek Test for Pregnancy."

New York City

Tuberculosis Hospitals Overcrowded.—A recent survey of tuberculosis hospital service showed that the number of patients being cared for was 4,980 and the total normal capacity in the city's tuberculosis hospitals and wards in twenty-one public and private institutions was 4,578. In addition, the admission bureau of the department of hospitals has knowledge of 392 cases waiting for hospital care. The department now has in progress four building projects that will add 1,000 beds to the supply now available. They include 250 in a new children's building at Sea View, Staten Island; 150 in new wards at Bellevue Hospital; a hospital adjoining the new Queens General Hospital for 500 patients, and a project for more wards in the Bronx.

Pneumonia Control Program.—The board of estimate has appropriated about $100,000 for a pneumonia control program to be carried out by the New York City Health Department during the remainder of 1937. The department will be able to provide clinical assistance by a corps of trained advisers to physicians and hospitals on request; they will demonstrate the technic of administering the serum and give advice as to the size and frequency of the dose. Facilities for typing serum are to be established in each borough to supplement the service already available in Manhattan; instruction in typing will also be provided for technicians. Therapeutic serum of types I, II, V, VII and VIII will be generally available through typing stations and for hospitals. Limited supplies of serum of some of the rarer types will be distributed as rapidly as possible.

OKLAHOMA

New Health Officers.—Dr. Maurice L. Peter, Blackwell, has been appointed medical director of a new health unit established in Kay County.——Dr. Glen W. McDonald, Ada, has been appointed health officer of Pontotoc County and Dr. James T. Lowe, Mangum, of Greer County.

Plans for Fall Clinical Conference.—The Oklahoma City Clinical Society will present its eighth fall clinical conference November 1-4 at the Biltmore Hotel, Oklahoma City. The guest speakers will be Drs. John H. J. Upham, Columbus, Ohio, President of the American Medical Association; John W. Amesse, Denver; William L. Benedict and Claud F. Dixon, Rochester, Minn.; William Boyd, Toronto, Ont.; Cyrus E. Burford, St. Louis; Frederick Christopher, Evanston, Ill.; H. Earle Conwell, Birmingham, Ala.; Walter T. Dannreuther, New York; Frederick D. Weidman and Chevalier Jackson, Philadelphia; Samuel A. Levine, Boston; Bernard H. Nichols and Ernest Perry McCullagh, Cleveland; Norman F. Miller and Cyrus C. Sturgis, Ann Arbor, Mich.

PENNSYLVANIA

Hospital Appointments.—Dr. Walter I. Buchert, Cleveland, has been appointed head of the department of the Geisinger Memorial Hospital, Danville, and Dr. Reed O. Dingman, formerly of St. Louis, who is also a doctor of dental surgery, has been made head of the department of oral, maxillofacial and plastic surgery.

Plan Pneumonia Control Campaign.—The commission on pneumonia control of the Medical Society of the State of Pennsylvania and the state health department will sponsor a luncheon during the annual session of the Medical Society of the State of Pennsylvania in Philadelphia, October 4-7, to plan a campaign for the fall and winter. County medical societies have been asked to create pneumonia control committees to be represented at the luncheon. Seventeen counties had done so up to the publication of the August issue of the *Pennsylvania Medical Journal*. Points in the program will be to develop laboratories throughout the state for diagnostic typing and to have the state, in cases properly certified, furnish pneumonia serum to those unable to pay for it. Dr. Edward L. Bortz, Philadelphia, is chairman of the commission. Members are Drs. Edward W. Bixby, Wilkes-Barre; Mathew H. Sherman, Harrisburg; Clifford W. Skinner, Meadville; Clifford C. Hartman and George J. Kastlin, Pittsburgh; Leon H. Collins Jr., Thomas Grier Miller, Henry K. Mohler and Hobart A. Reimann, all of Philadelphia. The advisory board of the state health department at a meeting July 26 adopted a regulation making pneumonia a reportable disease.

RHODE ISLAND

Personal.—Dr. Hilary J. Connor, of the staff of the state department of health, Providence, has been appointed superintendent of State Sanatorium, Wallum Lake, to succeed Dr. Robert Lemley Garrard, resigned.

WEST VIRGINIA

Personal.—Dr. J. W. Ruckman, West Liberty, has been appointed college physician to the West Liberty Teachers College.

Society News.—Dr. Royd R. Sayers of the U. S. Public Health Service, Washington, D. C., addressed the Preston County Medical Society at a meeting at the Hopemont Sanitarium, near Terra Alta, July 23, on silicosis.

WISCONSIN

Personal.—Dr. Henry H. Christofferson, Colby, has been appointed to the state board of medical examiners to succeed Dr. Bartholomew E. McGonigle, Ableman.——Dr. Frank O. Hunt, Fall River, was honored on his seventieth birthday June 27 by 1,200 of his patients, who came from many states, according to the *Wisconsin Medical Journal*, and presented him with a watch.

GENERAL

Dr. Clarke Returns to Social Hygiene Association.—Dr. Charles Walter Clarke, formerly medical director of the American Social Hygiene Association, New York, who was lent to the New York City Department of Health in 1935 to organize its bureau of social hygiene, has returned to active duty with the association with the title of executive director. Dr. William F. Snow is general director of the association.

Military Surgeons' Meeting.—The forty-fifth annual meeting of the Association of Military Surgeons of the United States will be held in Los Angeles at the Hotel Ambassador, October 14-16. Among the speakers will be:

Capt. George F. Cottle, Medical Corps, U. S. Navy, Fleet Medicine.
Lt. Comdr. Albert G. Bower, U. S. Naval Reserve Corps, Glendale, Calif., Modern Typhoid Treatment.
Lt. Comdr. Howard L. Updegraff, U. S. Naval Reserve Corps, Los Angeles, Emergency Plastic Surgery.
Col. Howard C. Naffziger, U. S. Army Medical Reserve Corps, San Francisco, Surgical Treatment of Low Back Pain.
Capt. Charles Leroy Lowman, U. S. Army Medical Reserve Corps, Los Angeles, Physiotherapy in the Next War.

The Funeral of Dr. Simmons.—In the chapel at Graceland Cemetery in Chicago, numerous friends of Dr. George H. Simmons, Editor and General Manager Emeritus of the American Medical Association, paid their last respects, September 2. The casket was all but covered with floral tributes, and telegrams and cablegrams expressing condolence were received from almost the entire world. The impressive service was conducted by the Reverend Herbert W. Prince, Episcopalian minister,

Lake Forest, Ill., who also gave a brief address. Following the services, the body was cremated. The ashes were later returned to Lincoln, Neb., where Dr. Simmons practiced medicine for many years previous to his appointment in 1899 as Secretary of the American Medical Association and Editor of THE JOURNAL.

Warning Against Worthless Checks.—An optical goods firm in Chicago reports that several physicians in Wisconsin and upper Michigan have been swindled by a man who orders glasses and gives worthless checks for them. He has his eyes examined and asks the physician to mail the glasses to his rural address. In most cases he selects glasses that cost from $12 to $15 and tenders a check for from $30 to $40, asking the doctor to reimburse him for the difference in cash. When the glasses are mailed to the name and address given, they are returned. A representative of the optical firm gives the following description of the man: about 46 years old, about 5 feet 8 inches tall, weighs about 190 pounds, has a tendency to baldness and dresses "like a farmer dressed to go to town." He tries to buy glasses for reading, as glasses are not needed for his distance vision. One check was signed J. P. Dyer.

Bequests and Donations.—The following bequests and donations have recently been announced:

Woman's Medical College of Pennsylvania, Philadelphia, $25,000, and Jefferson Medical College, Philadelphia, $10,000 by the will of Mrs. Jane M. Jenks Southern, widow of Dr. Frank L. Southern, an alumnus of Jefferson.

Roper Hospital, Charleston, S. C., $12,000 by the will of James R. Pringle.

Wisconsin Anti-Tuberculosis Association, $25,000 by the will of the late Howard E. Mitchell, Milwaukee.

Orange (N. J.) Memorial Hospital, $1,000 from an anonymous donor.

Hackensack Hospital Association, $15,000 by the will of the late R. Bleecker Rathbone, New York.

St. Francis Hospital, Hartford, Conn., $5,000 from the estate of the late John J. Brady.

The late Richard Greene, Jackson, Miss., left his residuary estate, estimated at about $350,000, to build a free hospital for Negroes or wards for Negro patients in some established hospital.

New York Nursery and Child's Hospital, $30,000 by the will of Miss Emma Elizabeth Conner.

Presbyterian Hospital, Philadelphia, $5,000; Lankenau Hospital, Philadelphia, $1,000; and Pennsylvania Institute for the Blind, Overbrook, $3,000 by the will of Frederick A. Rakestraw, Overbrook.

Annual Congress of Physical Therapy.—The sixteenth annual session of the American Congress of Physical Therapy will be held in Cincinnati, September 20-24, at the Netherland-Plaza Hotel. At the opening session Dr. Frederick L. Wahrer, Marshalltown, Iowa, will be installed as president and deliver his official address on "The Future Development of Physical Therapy"; Dr. Melvin S. Henderson, Rochester, Minn., will speak on "Deformities Following Fractures: Their Prevention and Treatment," and Dr. Anton J. Carlson, Chicago, "The Physiologist Looks at Physical Therapy." Tuesday evening, September 21, the congress will hold a joint session with the Academy of Medicine of Cincinnati with the following speakers:

Dr. J. Van Breemen, Amsterdam, Holland, The Conception of Reaction in Physical Treatment.

Dr. Eugen Weissenberg, Vienna, Austria, Ultrashort Wave (Diathermy) Low Intensity Treatment.

Dr. Harry E. Mock, Chicago, Physical Therapy—What Is It and What Will It Do?

There will be symposiums on hyperpyrexia, x-ray therapy, ionization, fractures, vascular diseases and short wave therapy. Thursday evening an educational conference will be held with the following as the speakers:

Dr. William H. Schmidt, Philadelphia, The Function of the County Medical Society in Physical Therapy Education of the General Practitioner.

Dr. Oswald N. Andersen, Chicago, Function of the Council on Medical Education and Hospitals in the Standardization of Schools for Physical Therapy Technicians.

Dr. Joseph A. E. Syracuse, Buffalo, Ten Years of Hospital Physical Therapy.

Among other speakers in the general sessions are included:

Dr. Francis H. Redewill, San Francisco, Electrotherapy and Chemotherapy. Including Sulfanilamide in Gonorrhea and Its Complications.

Dr. Burton E. L. Hyde, Troy, Ohio, Clinical Observations on the Uses of Irradiated Blood.

Dr. Charles S. Venable, San Antonio, Texas, Electrolytic Action Between Metals as Used in Bone Surgery.

Dr. Upton W. Giles and Mr. A. L. Harvey, New Orleans, Experiments in Sterility of Male Animals Induced by Radiant Heat.

Dr. Richard Kovacs, New York, Ultraviolet in Secondary Anemia.

Drs. William C. Menninger and Byron L. Shifflet, Topeka, Kan., Psychological Aspects of Physical Therapy.

Tuesday and Wednesday mornings will be devoted to section meetings.

Prevalence of Infantile Paralysis.—The U. S. Public Health Service reported September 1 that 4,053 cases of infantile paralysis had been reported for the first thirty-four weeks of 1937 as compared with 1,618 for the corresponding period of 1936. For the week ended August 28, with no reports from North Dakota and South Carolina, 621 cases were listed as against 133 cases for the corresponding week of last year, and 807 for the corresponding week of 1935.——Chicago newspapers reported September 7 that there were sixty-four new cases and seven deaths during the week ended September 5. Ninety-five cases with eight deaths had been reported since August 1. Opening of public and parochial schools was postponed.——Buffalo also postponed the opening of schools for two weeks because of twenty cases with three deaths since August 4, newspapers reported September 3.——Children under 7 years of age are barred from attending school or appearing in public places until September 20, in Milwaukee; twenty-five cases, seven nonresident, were reported under treatment September 1.——The opening of schools was also deferred in Kansas City, Mo., and in Fort Collins, Colo.; most of the sixty-two cases in Colorado are said to be in the Fort Collins area.

CANADA

The Poliomyelitis Epidemic in Ontario.—Reports dated September 5 showed that 1,145 cases of poliomyelitis with thirty-nine deaths had occurred in the province of Ontario since the beginning of the present outbreak in June. Toronto has had 347 cases. School and county fairs have been canceled in several counties and the opening of schools was postponed in a number of towns. The annual baby show at the Canadian National Exposition in Toronto was also canceled. Several thousand children have received preventive treatment with the nasal spray of zinc sulfate. Montreal has begun the collection of blood serum from recovered patients to provide treatment for those stricken in Toronto. Arrangements have been made to bring patients from remote districts by airplane to Toronto hospitals and the planes will also be used to transport serum and other medical supplies to outlying districts.

Government Services

Civil Service Examinations for Bacteriologists

The U. S. Civil Service Commission announces open competitive examinations for the positions of associate and assistant bacteriologist in the U. S. Public Health Service at salaries of $3,200 and $2,600 a year, respectively. Optional branches of the subject are brucellosis, anaerobes, physiology of bacteria and viruses. The duties of the positions are to conduct research in these branches and present the results in reports or papers for publication. Applications must be received by the civil service commission in Washington not later than September 20 or, if from Arizona, California, Colorado, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington and Wyoming, not later than September 23. Application forms may be obtained from the Secretary, Board of U. S. Civil Service Examiners, at any first class post office, from the commission at Washington or from its district offices in any of the following cities: Atlanta, Boston, Chicago, Cincinnati, Denver, New Orleans, New York, Philadelphia, Seattle, St. Louis, St. Paul, San Francisco, Honolulu, Balboa Heights, Canal Zone, and San Juan, Puerto Rico.

New Buildings for National Institute of Health

Three new buildings will be erected on a site in Bethesda, Md., to provide improved facilities for the National Institute of Health, it is announced. Construction is expected to begin immediately. An allotment of $1,143,000 from the emergency construction program acts of 1934 and 1936 is available for erection of the buildings, which will serve as a nucleus of a national medical center. Until they are completed, headquarters of the institute will remain at Twenty-Fifth and E streets, Washington, D. C. The site is a forty-five acre tract of wooded land on the Rockville Highway near Bethesda, which was donated to the U. S. Public Health Service for this purpose in 1935 by the late Luke I. Wilson, a Washington business man. The new units will include a central administration building, flanked on each side by an industrial laboratory building and a public health methods building. This last unit will house numerous activities, including child hygiene and chronic disease work, and provide space for the inoculation of animals in the preparation of various vaccines. The structures will be of Georgian design, with exterior brick walls, stone trim and pitched hip slate roof, fireproof throughout. There will be a modern air conditioning and air heating system. Each building will consist of basement, sub-basement, three stories and attic, it was stated. According to the report, it is expected that the new National Cancer Institute, which was recently authorized by Congress, will be erected on the same property.

Foreign Letters

LONDON

(From Our Regular Correspondent)

Aug. 13, 1937.

Precautions Against Air Raids

The elaborate scale on which precautions against air raids are being taken is illustrated by the case of Sunderland, a shipbuilding town of 185,000 inhabitants on the northeast coast. An emergency organization 3,500 strong, including 2,000 volunteer air wardens, is being formed. Preparations are being made for the treatment of casualties, rescue work and demolition of unsafe buildings, decontamination of streets, repair of damage to roads and sewers, fire fighting, gas detection, emergency communications, protection of the public, and lighting restrictions. Control of these arrangements will be delegated to the chief executive officers of the town corporation, who will be responsible for their being kept down to date and ready for use. Headquarters will be arranged in various public buildings, and portions of them will be rendered gas and splinter proof, with living and sleeping accommodation. These men must have their telephones manned day and night in time of war, so that prompt warning of air raids shall be received. Arrangements for the darkening of the streets and houses will be drawn by the electrical engineer. The air raid wardens will be leaders and advisers of the public, who will occupy posts previously selected and be provided with fire extinguishing equipment. A large emergency fire department is to be organized. The police and others will be instructed in gas detection, but there will also be twenty-nine special gas detection officers, who will be recruited from chemists, chemistry masters in schools and sanitary inspectors. They will undergo a course of training. Medical services will be organized under the health officer of the town. There will be thirty first aid parties, of four men each, for treating casualties in the streets and bringing them to first aid posts. The hospitals will be used as casualty clearing stations. It is estimated that a maximum of 400 beds will be required, and to provide these patients will be moved out of the hospitals in the danger area. For ambulance work the corporation ambulances will be called into use, with improvised ambulances in busses and private vehicles. Arrangements will be made with the local laundries for the treatment of contaminated clothing, selected members of their staff having been trained in this work. Each householder must set aside a room and equip it as a gas-proof shelter and store sand for use on incendiary bombs.

Cancer of the Breast

In the Skinner lecture delivered before the British Association of Radiologists, Dr. Francis Hernaman-Johnson said that the five year survival statistics have been greatly improved by postoperative irradiation of cases of cancer of the breast but that the ultimate mortality had not been affected. Great advances, however, had been made in alleviating the lot of these patients. By after-care he meant the care of the patients after the primary growth had been dealt with. He preferred surgical removal provided it was not too drastic. An axilla in which the glands were not palpable was best left alone. If there was microscopic invasion it could be dealt with by irradiation. He preferred operation, because it made radiologic access to the inside of the thorax easier and one did not have to deal with a large area of tissue, much of which had already been irradiated to the limits of safety.

Efficient supervision of all breast cases from the time of operation was best carried out by one man and, as the radiotherapist would inevitably be called on to deal with them when they go wrong, he should have the supervision of them from the beginning. There should be a special clinic to which all patients are sent as soon as possible after operation. For purely prophylactic treatment in the sort of case which, if treated by surgery alone, would stand a good chance of some years' survival, heavy doses of x-rays, carried to a point at which healthy tissues might be damaged or severe constitutional symptoms produced, was not justified. Prophylactic x-ray treatment should be of wide distribution but of low intensity, and be given with the idea of increasing resistance, both local and general. When there was localized recurrence not of a kind that could be suitably dealt with by operation, heavy dosage over a strictly localized area was valuable as a palliative and might prolong useful life for many years. The later stages of breast cancer must be treated as a general disease, the rapidity of its progress being determined to a large extent by constitutional factors. This particularly held when there were multiple small metastases in bones. Change of air and scene might temporarily avert the decline. Ultraviolet treatment might have a truly remarkable result in prolonged arrest of the disease, with gain of weight and strength.

Isolated recurrences in the skin were of little importance from the prognostic point of view. They could be dealt with by surface radium or by the Chaoul tube and did not tend to come back. A recurrence in the axilla might be held in check for years by irradiation alone, but if it appeared reasonably discrete it was best eventually removed surgically. Malignant invasion of supraclavicular glands was more serious because it was practically impossible to deal with it surgically. But heavy localized x-ray dosage might maintain the status quo for long periods. Isolated metastasis in the pelvis or long bones was often quite amenable to treatment. Spontaneous fractures might be caused to unite and the patient be restored to active life for years. For generalized metastases of bones he could recommend only Todd's method (administration of selenium). Even cases of thoracic invasion were not beyond radiotherapy. It was astonishing how dyspnea might be relieved for a long time. But in his experience invasion of the liver was beyond human aid. Swelling of the arm might make life completely miserable. The patient was by no means necessarily near the end even if the swelling was due to actual growth. If she did not improve under heavy doses of x-rays, surgical intervention was worth considering. Sir Harold Gillies had devised an operation for these cases. In a case of lymphatic obstruction of the right arm, with no evidence that it was due to secondary carcinoma, he short-circuited the lymphatic blockage in the right axilla by transplanting the left breast, with its lymphatics, to the right, in such a way as to leave untouched the drainage of the left axilla. The edema of the hand and forearm almost disappeared.

Should Orchidectomy Be Performed in Pseudohermaphroditism?

In a letter to the *Lancet,* Mr. Kenneth Walker (genito-urinary surgeon) criticizes the recorded treatment of the following case: A child of 7, externally apparently a female, had two testes with epididymides, which were discovered during exploration of a supposed bilateral inguinal hernia. As usual in such cases, the operator could not resist the temptation of removing the offending organs. He commented: "It might be considered that the bilateral orchidectomy was unwarranted and too radical a procedure, but it is in accordance with the teaching of Blair-Bell that when the external genitalia and secondary characteristics are feminine and the child had been brought up as a girl, removal of the testes is the correct practice." Mr. Walker considers that this view is based on three misconceptions that are extraordinarily prevalent: (1) that the only function of the gonads is the determination of the secondary sex characteristics; (2) that these characteristics arise simply

as the result of the action of the sex hormones on a neutral body; (3) that if the testes are left, male characteristics will inevitably appear later.

The pseudohermaphroditism described is almost certainly explained by failure of the body to respond to male hormones in the direction of maleness. Hence the body is carried by its natural bias in the direction of femaleness. Why therefore should it be assumed that in later years the child will develop maleness? Certainly this has happened, but more often than not the failure to react to the male hormone persists through life. Should however signs of maleness develop later, castration can then be carried out. Castration in the first instance is not the correct treatment and may upset the metabolism of the body. In the case of a good looking girl of 25 it caused her rapidly to put on two stone (13 Kg.) in weight and only as the result of a year's work and administration of much anterior pituitary and thyroid was the upset of metabolism to some extent readjusted.

PARIS

(From Our Regular Correspondent)

Aug. 14, 1937.

Abuse of Free Medical Care Becomes More Prevalent

The present crisis in the medical profession here is due in great measure to the admission to public hospitals and dispensaries of patients whose circumstances permit them to enter private institutions or to be treated in the offices of local practitioners. So far, this abuse has been confined to larger cities, especially Paris, and the country practitioner has suffered less than his city colleague. In a complaint addressed to the editors of the *Concours médical*, which appears in the July 11 issue, it would seem as though this abuse of free medical care is extending to smaller communities. The correspondent states that the mayor of a small community maintains that, in the future, all persons covered by social insurance must be admitted to the nearest hospital as indigents. Two seriously ill persons who required emergency treatment were recently placed on the free (indigent) list. According to the correspondent, these patients were amply able to pay for medical attendance and hospital service. The correspondent asks what can be done under such circumstances. In the answer it is stated that the law governing those covered by social insurance is quite different from that of medical care for the indigent. The former are reimbursed for any outlays on presentation, to the local caisses or disbursing offices, of certificates signed by physicians or others as to how much they have paid for medical and hospital services. Such an insured person has the right to choose his medical attendant and the hospital, provided the latter has a contract with the social insurance organization. If, in emergency cases, the mayor sends an insured person to the nearest hospital as a free patient, such admission is subject to revision by the departmental (county) committee on complaint being received from a physician. This is the only method by which those able to pay for medical care can be prevented from entering as free patients. It would appear, however, as though this is another example of locking the stable after the horse is stolen.

A Symposium on Decrease in Population of France

The June 29 meeting of the Académie de médecine was devoted to the discussion of the decrease in population, which is causing much concern in France. Two of the papers were read by Professors Couvelaire and Brindeau, leading obstetricians, and the third by Dr. Renault, a well known pediatrician. Professor Couvelaire, in discussing the measures to raise the natality rate, stated that the voluntary restriction of the number of births has been responsible for the lack of increase in French population for more than a century; hence a policy in the opposite direction was urgently necessary. Immigration will be of little help unless care is taken not to let in every one who wishes to settle here. A strict moral and physical control of every newcomer is indispensable, before naturalization is permitted. The solution to the question of denatality lies in bringing home to young couples their own interest and duty in maintaining the existence of the country. An average of three children per family is the minimum to overcome the disproportion between the number of births and deaths. If the state wants children, it should be its duty to see that young couples should have some interest in the matter. Material advantages check, at least temporarily, contraceptive methods, as has been shown several times for nearly the past century and a half in France. Measures taken to lighten the financial burden for heads of families at present includes either reduction of taxes or a direct payment. The Strauss law in France allows maternity premiums to be paid and there are four other laws to encourage natality by financial aid for large families. A movement which began in the industrial region of northern France to make extra payments to employees who have children was made obligatory for all employers in 1932. Nearly two billion francs was paid up to May 1937 and the natality rate is 22 per cent higher than the average in the families of such workers. The reductions in income tax for heads of families have been insufficient. The sales tax which retailers pay affects the head of a family in proportion to the number of children and is still quite an unwelcome addition to the daily outlay for food. Instead of relative deductions on income taxes and allowances for large families it would be better, according to Professor Couvelaire, to adopt the methods now employed in Italy and Germany. A loan is made to newlyweds, which is reduced by increasing percentage with each birth until, after the fourth child, the remainder of the loan is converted into a gift. Assistance and encouragement are necessary but these measures will not be adequate to solve the denatality problem until a moral social environment is created which favors family life. The problem of natality is intimately related to the education of young girls. Professor Brindeau spoke on the decrease in population from the obstetric point of view. The campaign against involuntary sterility has made a great deal of progress. Secret abortion is one of the most frequent causes of denatality, and the complications incident to such procedures often render women sterile for life. Although the medical profession is almost powerless in combating induced abortion, much can be done to prevent the spontaneous form, in treating the more common causes, such as syphilis, endometritis, uterine displacements and endocrine dysfunction. One should not place too much reliance on a negative Wassermann reaction. A second source of denatality is death of the fetus at term. The causes of intra-uterine death are about the same as those of spontaneous abortion, syphilis having the predominant part. In many cases, death of the fetus during birth is the result of hereditary stigmas on the maternal side, such as syphilis, albuminuria and organic or infectious diseases, the enfeebled fetus being less capable of tolerating obstetric trauma than a normal one. Statistics which show only the number of deaths at term do not give an accurate picture, because more infants die during the first ten days from premature birth effects, syphilis, meningeal hemorrhage and amniotic infections than at birth. The number of deaths at birth and during the first ten days shows a steady decrease, as the result of better antepartum care and of the progress made during recent years in obstetrics. Better technic and asepsis combined with the more widespread use of operative methods have had an important influence in saving many a mother and child. The social insurance law compels every expectant mother to attend antepartum clinics at least twice during every pregnancy. Brindeau protested against the indiscriminate use of anesthetics and of oxytocics during labor as not being free from danger to both mother and child.

The third paper in the symposium was by Dr. Jules Renault and Miss Labeaume on the development of the movement for the protection of infants. The best way to aid the mother was to permit her to remain at home and to nurse her child. Various organizations, one more than 150 years old, have devoted their energies toward reaching this goal. Instead of creating crèches, the present tendency is to give ample remuneration to mothers to stay at home and nurse their infants. The lack of team work between government bureaus and societies founded to aid home care of the new-born has been improved by two comparatively recently organized associations, the League Against Infant Mortality and the Bureau of Maternal and Infantile Protection. More than 60,000 new-born infants still remain under the care of wetnurses. Their surveillance has been better since the passage of the Roussel law, but there is still room for improvement.

BERLIN

(From Our Regular Correspondent)

Aug. 9, 1937.

The Treatment of Agranulocytosis

Dr. H. E. Bock discussed, in the Frankfort Medical Society, the treatment of agranulocytosis on the basis of investigations carried on at the Frankfort University Medical clinic, of which Professor Volhard is director. Agranulocytosis is a disease entity first described by Werner Schultz in 1922. The discovery of aminopyrine agranulocytosis, the importance of which according to the German point of view is greatly exaggerated, not only contributed substantially to the explanation of the pathogenesis but constituted an important landmark in therapeutics, since it demonstrated that, like barbituric acid preparations, aminopyrine preparations are to be avoided in disturbances resembling agranulocytosis. Aside from this discontinuation treatment and the enormous importance of nursing care there is also an active therapy. Whereas protein substance, epinephrine, thyroxine and liver substance (the last named important because of its general effect) represent only subthreshold granulotactic stimuli, induced turpentine abscess has a more durable effect. The three principal therapeutic procedures in agranulocytosis are roentgen stimulation-irradiation of the medullated bones, blood transfusions and administration of pentnucleotide. Although nucleotide in large doses has heretofore represented the most effective medication for the building up of leukocytes, a blood transfusion exerts the optimal general effect. Copious and frequent transfusions should be performed and the utmost caution exercised in the selection of donors. Cases have been reported in which three transfusions of 675 cc. each were given and in other cases the quantity even reached 1,000 cc. per transfusion. Satisfactory bridging over of the most dangerous four initial days, that is, an effective compensation for granulocyte deficiency in the face of the threatening sepsis, is however not always achieved even by maximal transfusions if normal blood is used. Schittenhelm attained favorable results in a single case by utilization of the blood of a patient with myeloid leukemia. Bock's employment of a similar procedure, undertaken without knowledge of Schittenhelm's case, was also successful. At the Volhard clinic a woman typist, aged 40, who presented a severe agranulocytosis, was placed out of danger within nineteen days by twelve 500 cc. transfusions of leukemic blood. The patient on admission exhibited all signs of the disease in its most exaggerated form; for five days no granulocytes could be observed, the total number of leukocytes fluctuated between 200 and 1,100 and there was no monocytosis. The patient was highly feverish, the erythrocyte sedimentation rate was elevated, and marrow of the tubular bones exhibited a purely myeloblastic-reticular high grade cell-deficient character. Further complications were pneumonia and necrosis of the gums. The total value of leukocytes transplanted corresponded to that contained in 250 transfusions of normal blood. The transfusions were unaccompanied by any incident. The colossal consumption of leukocytes was especially exacerbated by a femoral abscess, which was opened at the end of the third week. Only in the fourth week did the leukocyte balance become positive. The high grade destruction of the myeloid tissue and the regeneration of myelopoiesis toward normal under the influence of the leukemic blood could be observed at all stages of the illness both in the hematomyelogram and in the histologic section of the sternal punctate.

Changes in the Blood During Pregnancy

The Berlin hematologist Prof. Werner Schultz pointed out in a session of the Medical Society of Hamburg that, whereas changes in the blood are frequent enough during pregnancy, defective states of the blood are seldom manifested. Nearly one half of all gravidas present declines in the hemoglobin and erythrocyte values of some 10 per cent below normal. This is an innocuous phenomenon that does not require treatment. More recent investigations have disclosed that these alterations in blood, usually designated "pseudo-anemias," may vary within the course of the same pregnancy; at one time the blood values may be normal, at another depreciated. The water economy of the pregnant organism plays a part in these phenomena; however, this aspect of the problem has been studied but little as yet. Even the amount of plasma can fluctuate a good liter in the same gravida. The borderline between this benign pseudo-anemia and genuine "essential anemia of pregnancy" is therefore flexible. Symptoms that first permit a diagnosis of the anemia of pregnancy to be established are severe fall in the hemoglobin and erythrocyte values, pronounced malaise, spells of syncope and vertigo. The anemia of pregnancy is rare. Strictly speaking, an anemia cannot be regarded as conditioned by the pregnancy unless the physician possesses a record of the pregravidic and postpartum blood value. One should also consider cases of pernicious appearing anemias of pregnancy and cases of pregnant pernicious anemia patients. Then too, women affected with "poorly regenerating hemorrhagic anemias" and "essential anemias" may become pregnant, a fact to be considered in the differential diagnosis of true anemia of pregnancy.

The Chiasma Syndrome

The Berlin Medical Society met recently in joint session with the Society of British Neurological Surgeons. Prof. A. A. McConnell of Dublin spoke first on the chiasma syndrome. The most important symptom is impaired vision either unilateral or bilateral. Especially characteristic are the central scotoma and the limitation of the visual field. He mentioned, among other conditions, the chiasmic aneurysms, subdural cysts, meningiomas, hypophysial adenomas, craniopharyngiomas, chiasmal gliomas and internal hydrocephalus. A predominant symptom in all cases is an impairment of vision that usually first causes the patient to consult a physician. Other symptoms are headache, vertigo and syncope. Total blindness of one or both eyes often eventuates. Of great significance is the observation that not infrequently the sight returns following removal of the pathologic process. Operative treatment, if at all feasible, is indicated. Differential diagnosis often presents formidable difficulties, as there is no group of symptoms indicative of a particular type of chiasmal process. Accordingly, each individual case represents a special problem. As diagnostic aids ventriculography, arteriography and the roentgenogram are to be utilized. The prognosis in many cases is favorable.

In the discussion that followed Dr. McConnell's lecture, Professor Olivecrona of Stockholm spoke on aneurysms of the internal carotid artery. Smaller aneurysms produce a central scotoma and impairment of the temporal field of vision on the affected side. By way of contrast, larger aneurysms give rise

to a homonymous hemianopia and bilateral central scotoma. Professor Foerster of Breslau reported seventy-one cases of chiasma syndrome among a material of 12,000 neurologic cases covering a period of sixteen years. The most frequent cause was hypophysial tumor, although arachnitis also loomed large as an underlying condition. Foerster observed several cases in which surgical intervention for a hypophysial tumor was followed by an unequivocal maniacal syndrome. Operation often discloses a much more extensive area of deterioration than preliminary examination would lead one to anticipate. Occasionally chiasma syndrome is merely a consequence of pressure exerted by more deeply situated processes such as ventricular cysts, neurocytomas at the base of the brain and deep-lying tumors along the hypophysial infundibulum. In one case it was possible to terminate completely a diabetes insipidus by means of operation. Professor Tönnis of Berlin has treated seventy-three patients who presented chiasma syndrome. Frequently the anamnesis reveals a history of psychic disturbance reminiscent of Korsakoff's psychosis. Careful observation of the condition of the fundus oculi is indispensable. The variations in the incidence of particular types of tumors according to age groups is a further important consideration: craniopharyngiomas tend to be manifested in the second decade of life, hypophysial adenomas in the third decade and meningiomas in the fourth. The tumor presses on the chiasma from above, thus causing a scotoma in the inferior-exterior region. Puncture of the shadows situated in the region of the sphenoid sinus which appear suggestive in the roentgenogram may under certain circumstances be extremely dangerous (as cerebrospinal fluid may be aspirated). According to the observations of Tönnis, the prognosis of operative treatment is most favorable in adenomas; the mortality of patients who presented this type of tumor was 2.5 per cent, against 20 per cent in cases of meningioma. In conclusion, Nonne of Hamburg pointed out that chiasma syndrome may also be of syphilitic origin. He has observed several cases of hereditary syphilis in which the syndrome was present. A syphilitic endarteritis as well as the gummas form the morphologic substrata of this interrelation; at the same time the Wassermann reaction of the fluid may be negative. Antisyphilitic therapy often affects such cases favorably.

Can Short Wave Irradiation Impair the Germinal Factors?

Injuries to the germinal factors, caused by roentgen rays, has become the subject of vigorous discussion. Since short waves have come to be utilized extensively in the treatment of inflammatory disorders, especially in gynecology, it is necessary to determine whether the high frequency waves are capable of producing genetic effects similar to those produced by roentgen rays. A. Pickhan, director of the roentgenologic section of a Berlin hospital, has conducted an investigation of this problem and reports his observations in the *Deutsche medizinische Wochenschrift*. He selected the fruit fly Drosophila melanogaster, since in the entire animal and vegetable kingdoms no other creature is more suitable for the study of experimental genetics. The basic laws of genetics, the durability of germinal factors, the manifestation of spontaneous mutations and the elicitability of hereditary changes by certain irradiations are, as Pickhan emphasized, identical for all members of the animal and vegetable kingdoms. At the same time the dose that is harmful to man is of only secondary importance. Drosophila was tested in two series of experiments, for its reaction both to the short waves alone and to a combined short wave and roentgen irradiation. A wave of 6 meters was used throughout. In the course of a year more than 6,000 cultures of 100 flies each were developed. The results of these experiments may be summarized as follows: Treatment with a high frequency current did not produce a statistically certain increase in the rate of mutation. An increased sterility in the second filial generation (F 2) was not observed. The high frequency field exhibited no statistically demonstrable influence on the mutation-eliciting effect of roentgen irradiation. For clinical purposes it may be concluded that the 6 meter waves thus far studied do not influence the genes even if applied in great intensities. No heightening of the mutation-eliciting effect of roentgen irradiation was observed to follow combined roentgen and short wave irradiation. Naturally, this does not mean that an increase in both physiologic and biologic reactions of another sort may not be present.

JAPAN

(From Our Regular Correspondent)

June 26, 1937.

The Nation's Health Control Bill

The home office has decided to submit to the next regular session of the imperial diet a bill providing regulations for the compulsory physical examination of the population from infancy up to 40 years of age. The principal object is to gather data on national health conditions. Measures, based on this, to expand the state health provisions will be devised. The home office and the war office are expected to go hand in hand in the way of the national health promotion campaign that was recently started. This bill is reported to be a first preparatory step toward completion of the army's national mobilization scheme. According to the draft plan, infants four months after birth will be ordered by the state to undergo a health examination at the city, town or village office and enrolled on the national health list. The primary schools will be in charge of the matter while children are attending schools. The health examination will be conducted every year for those who have finished the primary school and do not reach the conscription age, and young women. For the others, the examination will be carried out every three years. Health cards will be prepared at the city, town or village offices, and detailed records will be kept concerning the health of every person. The administration of this project will be by the ministry of health, which is expected to be newly established in the cabinet.

Hundreds of New Health Centers

The chief object of the 550 health centers which are to be newly established during this fiscal year is to give instruction in preventive medicine. The centers are to make the people health conscious through improvement of nutrition and the selection of wholesome food, in which the housewives are to be instructed; hygienic clothing; sanitation in dwellings; enlightened treatment of pregnant women and of infants, and the prevention of tuberculosis, venereal diseases and parasitic diseases. The health centers will be established and maintained by the prefectures, the local governments, and the appointed greater municipalities. They will have, if necessary, branches in the country. There will be at least two medical experts, one pharmacist, one clerk and three women. The government will grant half of the expense to the establisher for its foundation, and one third of the annual working expenses will be granted by the government. At the health center any kind of treatment is free of charge.

New Gymnasiums to Commemorate the South Manchurian Railway

The thirtieth anniversary of the foundation of the South Manchurian Railway will be celebrated by establishing seven gymnasiums as a memorial, with the aid of the Manchukuo government. The memorial was limited to medical work because the authorities consider that the most important business for the Manchukuo empire at present is the promotion of the health of the people there. The gymnasiums will benefit the Japanese residents there as well as the Manchurian natives. Special attention will be paid to equipment for use in winter

when outdoor sports and games are prohibited by the extreme cold. Another memorial of this kind is the establishment of five tuberculosis sanatoriums. There are about 20,000 tuberculosis cases among the 500,000 Japanese residents there. Four hundred beds will be newly furnished and ready for use in 1939.

Notification of Tuberculosis Cases

The revised regulations for the prevention of tuberculosis were expected to be put in force July 10. Among others, one of the most important changes is the notification to the authorities of the name, address, age and the diagnosis. By "the authorities" is meant the chief of the local government under whose control the doctor is. If the doctor fails to give notice to the authorities he will not be punished, for no penal law is announced, all being left to the conscientiousness of the doctors. A good result, however, is expected on all sides.

BELGIUM

(From Our Regular Correspondent)

July 22, 1937.

A National School of Aerial Protection

Since Belgium is in an exposed and crucial position with respect to any general European conflict, it is necessary to pay the utmost attention to the problem of defense against aerial attack. The government has accordingly just initiated a complete innovation, the foundation at Brussels of the Ecole Supérieure pour la Protection Aérienne—the first institution of the kind. Previously activities in this sphere had, generally speaking, depended on mutual agreements between various well intentioned officials and there was a marked lack of scientific discipline and administrative coordination.

Prof. Lucien Dautrebande, who conceived the idea of this school, had in mind the abolishment of these administrative difficulties. In the dedicatory address delivered at the war college he enunciated three principal national objectives with respect to aerial protection. These were (1) unity of purpose, (2) improved coordination of efforts and (3) consolidation of progress achieved. The new school will be essentially a scientific institution. Not only will it seek to profit by the experiences of the World War but it will in addition keep constantly abreast of the latest relevant innovations in the fields of chemistry, physics, physiology and therapeutics. The school plans to organize a central library in which a collection of international material will be housed. The creation of practical research laboratories is also contemplated. The curriculum will include courses in (1) international law, (2) general and specific chemistry of war gases, (3) general and specific pathology of war gases, (4) therapeutic measures employed in gas casualties, (5) identification and dosage, (6) principles of individual and group protection and (7) organization of general protective measures. Students are selected from among physicians, pharmacologists, chemists and engineers. Graduates will serve as expert advisers in various centers throughout the country. The ministry of the interior hopes in this way to build up a substantial scientific defense armament for Belgium and this in turn will tend to make all classes of society conscious of the importance of protection against aerial attack.

The Diagnosis of Intoxication

Dr. Leduc, in the Société de Médecine légale en Belgique, discussed measures undertaken for evaluation of the state of intoxication by the amount of alcohol consumed. The importance of eliminating inebriates from services which involve the safety of the public and of fellow employees has led the medical department of the National Railway Association to undertake systematic detection of the existence of alcoholism among railway employees.

The immediate superior of an employee suspected of drunkenness must call in a physician to examine the suspect or send the latter to the dispensary. The boss will first of all have the employee write down a simple dictated text as a test of motor coordination. The medical examination consists of simple tests and observations: writing, orientation in time and space, efficiency, equilibrium, pulse and respiration and finally blood and urine examination by means of Nicloux's bichromate method. The physician should keep in mind that either evaporation or fermentation of the urine is a possible source of errors which require correction. Above all, the evaluation of a state of alcoholic intoxication is arrived at on the basis of the clinical picture.

As a general rule, clinical ebriety exists in those cases in which 1.5 per thousand parts of alcohol has been found to be present in the blood. The author cites numerous examples which illustrate the paramount diagnostic importance of the clinical picture.

Museum of Dermatosyphilographic Models

A museum of models has been opened in connection with the dermatologic and syphilographic clinic of Professor Dujardin. In the presence of a distinguished audience, Professor Ley congratulated Dr. Deleeuw on his admirable execution of some 500 splendid models which he has so generously contributed to the university. Deleeuw's work, said Ley, reflects remarkable artistic talent and rare powers of observation. The speaker further recalled that Deleeuw's first surgical collection of 400 models executed between 1904 and 1910 was destroyed by fire at the time of the Brussels exposition of 1910. He then made an apt allusion to the importance of the new collection, assembled since 1924, for the study of pathologic anatomy, dermatosyphilography and cancerology. He also praised the fine drawings and photographs with which Professor Dustin and his laboratory staff have enriched the Deleeuw collection.

Professional Disability of Radiologists

The National Antituberculosis Foundation points out that, although nurses and the lay personnel of hospitals and sanatoriums are eligible for disability benefits, the law does not provide similar insurance for the physician. The executive committee of the foundation suggests that the Fédération Médicale Belge propose to the minister of labor and public welfare the grant of regular disability compensation to radiologists who become incapacitated through the exercise of professional functions. The committee has agreed that, if proper contracts exist, the same obligations with regard to disability insurance which an employer assumes toward the lay personnel can be made applicable to a physician.

Marriages

HENRY BUNTING, Madison, Wis., to Miss Mary A. Ingraham of Brooklyn, in Northport, L. I., N. Y., June 22.

MORGAN SARGENT, Quincy, Mass., to Miss Margaret Louise Crane of Stamford, Conn., June 23.

CHARLES H. LAMON to Miss Jean Elinor Mains, both of New Kensington, Pa., July 31.

MAURICE L. LE BAUER to Miss Carolyn Weill, both of Greensboro, N. C., June 19.

HENRY DOWS STEBBINS, Boston, to Miss Rebecca Rhodes of Brookline, Mass., June 26.

JESSE A. RUST JR. to Miss Janet Hazen Dodds, both of Burlington, Vt., July 10.

CARL S. LYTLE, Dunnellon, Fla., to Miss Carolyn Endsley of Brooksville, May 30.

NORMAN VAN WEZEL to Miss Hannah P. Waxman, both of Cleveland, July 11.

JOHN ELMER LEWIS to Miss Josephine Carter Barney, both of New York, June 5.

JARRETT WILLIAM PALMER to Miss Marie Peterson, both of Ailey, Ga., June 22.

Deaths

Minor McDaniels ✠ Ithaca, N. Y.; University of Buffalo School of Medicine, 1904; formerly member of the state legislature; consultant in medicine on the staff of the Tompkins County Memorial Hospital; member of the Tompkins County Alcoholic Control Board and of the Tompkins County Welfare Board; vice president of the board of managers of the Tompkins County Laboratory and a member of the board for nine years; served during the World War; aged 65; died, June 4, of cerebral thrombosis and arteriosclerosis.

Munford Smith ✠ Los Angeles; University of Maryland School of Medicine, Baltimore, 1919; past president of the American Sanatorium Association; a director of the National Tuberculosis Association; fellow of the American College of Physicians; medical director of the Barlow Sanatorium; on the staffs of the Los Angeles General Hospital and the Hospital of the Good Samaritan; aged 45; died, June 28, of cerebral thrombosis, on board the *M. S. Canada* en route to Panama and England.

Mitchell P. Warmuth ✠ Philadelphia; Medico-Chirurgical College of Philadelphia, 1894; at one time lecturer of surgery and demonstrator of operative surgery at his alma mater; aged 66; for many years on the staffs of the Eastern State Penitentiary, Philadelphia General Hospital, Friends Hospital and the National Stomach Hospital, where he died, June 15, of chronic myocarditis.

Charles Dexter Ball ✠ Santa Ana, Calif.; University of Bishop College Faculty of Medicine, Montreal, Que., Canada, 1884; past president and secretary of the Orange County Medical Society; for many years president of the library board and the city board of education; formerly county physician and health officer; at one time member of the state legislature; aged 77; died, June 16.

Freas Benjamin Kleintob, Wyoming, Pa.; Jefferson Medical College of Philadelphia, 1916; member of the Medical Society of the State of Pennsylvania; member of the school board; aged 51; on the staff of the Pittston (Pa.) Hospital, where he died, June 6, of an infection of the jaw and pulmonary embolism following the extraction of teeth.

Hazley Thomas Groody ✠ Manhattan, Kan.; Chicago College of Medicine and Surgery, 1913; past president and secretary of the Riley County Medical Society; for many years assistant student health physician to the Kansas State Agricultural College; aged 53; died, June 2, in St. Luke's Hospital, Kansas City, Mo., of heart disease.

Forbes Robert McCreery ✠ New York; College of Physicians and Surgeons, Medical Department of Columbia College, New York, 1888; an Affiliate Fellow of the American Medical Association; aged 72; died, June 29, in Cornwall, Conn., of arteriosclerosis, cerebral hemorrhage, pneumonia and diabetes mellitus.

Jacob Fowler Avery ✠ Minneapolis; University of Minnesota College of Medicine and Surgery, Minneapolis, 1899; fellow of the American College of Physicians; served during the World War; on the staffs of the Northwestern and Abbot hospitals; aged 64; died, June 25, at La Jolla, Calif., of heart disease.

John Francis Bigony, Hinton, W. Va.; National Normal University College of Medicine, Lebanon, Ohio, 1892; member of the West Virginia State Medical Association; for many years member of the school board; formerly city and county health officer; aged 68; died, June 12, of coronary thrombosis.

George Edward Reynolds, Providence, R. I.; Georgetown University School of Medicine, Washington, D. C., 1906; member of the city school board; served during the World War; on the staff of St. Joseph's Hospital; aged 55; died suddenly, June 6, probably of coronary thrombosis and angina pectoris.

Ernest Guthrie Mark ✠ Kansas City, Mo.; University of Louisville (Ky.) Medical Department, 1899; member of the American Urological Association; fellow of the American College of Surgeons; on the staff of the Research Hospital; aged 59; was found dead, June 7, of potassium cyanide poisoning.

Joseph Michael Scanlon, Lawrence, Mass.; Tufts College Medical School, Boston, 1914; member of the Massachusetts Medical Society; served during the World War; on the staffs of the Massachusetts Eye and Ear Infirmary and the Boston City Hospital; aged 50; died, June 14, of pneumonia.

Henry Lincoln McClusky, Worcester, Mass.; Jefferson Medical College of Philadelphia, 1896; member of the Massachusetts Medical Society; at one time physician for the county jail; formerly on the staff of the Hahnemann Hospital; aged 69; died, June 2, of cardiorenal degeneration.

Erastus Hardy Tubb, Cordova, Ala.; Medical Department of Grant University, Chattanooga, Tenn., 1903; member of the Medical Association of the State of Alabama; aged 56; died in June at a hospital in Jasper of gangrenous cholecystitis and stone in the common duct.

Henry Arthur Greenebaum ✠ Chicago; Rush Medical College, Chicago, 1929; assistant in medicine, University of Illinois College of Medicine; associate attending physician to the Cook County Hospital; aged 34; died, June 24, of meningitis and pyelonephritis.

D. Watson Grear ✠ Anna, Ill.; Missouri Medical College, St. Louis, 1890; formerly coroner of Union County; for many years on the staff of the Southeastern Hospital for the Insane, North Madison, Ind.; aged 74; died, June 5, of angina pectoris and chronic myocarditis.

Louis William Schwindt ✠ Philadelphia; Medico-Chirurgical College of Philadelphia, 1911; for many years police surgeon; aged 51; on the staff of the National Stomach Hospital, where he died, June 15, of brain tumor of the right frontal lobe and bronchopneumonia.

Maurice D. Kefauver, Smithsburg, Md.; Baltimore Medical College, 1904; member of the Medical and Chirurgical Faculty of Maryland; aged 57; on the staff of the Washington County Hospital, Hagerstown, where he died, June 19, of carcinoma of the kidney.

Isaac Errett Graham, Mechanicsburg, Ohio; Western Reserve University Medical Department, Cleveland, 1889; formerly demonstrator of anatomy at St. Louis University Medical Department; aged 71; died, June 19, at the McClellan Hospital, Xenia.

Winfred Lee Reid ✠ Phoenix, Ariz.; Northwestern University Medical School, Chicago, 1924; associated with the Phoenix Clinic; aged 39; died in June of a skull fracture and fracture of the left clavicle and pelvis, received in an automobile accident.

Green Herschel De La Perriere, Irving, Texas; Kansas City College of Medicine and Surgery, Kansas City, Mo., 1919; member of the State Medical Association of Texas; aged 54; died, June 14, in Hoschton, Ga., of coronary thrombosis.

Meyer Joseph Epstein, Jonesboro, Ark.; Missouri Medical College, St. Louis, 1877; member of the Missouri State Medical Association; aged 80; died, June 17, in Chicago of arteriosclerotic heart disease and acute pulmonary edema.

Shelby Mumaugh, Lima, Ohio; Medical College of Ohio, Cincinnati, 1888; member of the Ohio State Medical Association; formerly on the staffs of the Lima Memorial and St. Rita's hospitals; aged 70; died, June 3, of heart disease.

Barnet Lemchen, Chicago; St. Louis University School of Medicine, 1908; member of the Illinois State Medical Society; for many years connected with the Chicago State Hospital; aged 66; died, June 18, of coronary thrombosis.

James R. Phillips, Preston, Md.; University of Maryland School of Medicine, Baltimore, 1869; formerly member of the state legislature; aged 92; died, June 18, of primary benign hypertrophy of the prostate and arteriosclerosis.

John Henry Moore, Liberty Center, Iowa; Keokuk Medical College, College of Physicians and Surgeons, 1906; member of the Iowa State Medical Society; aged 66; died, June 10, in a hospital at Osceola, of cerebral hemorrhage.

Eugene C. Gordon, Columbus, Texas; Jefferson Medical College of Philadelphia, 1882; member of the State Medical Association of Texas; county health officer; aged 75; died, June 10, of chronic myocarditis and arteriosclerosis.

George Alexander Wagner ✠ Van Horne, Iowa; University of Illinois College of Medicine, Chicago, 1913; past president of the Benton County Medical Society; aged 59; died, June 5, probably of coronary occlusion.

Alonzo Burton Eckerdt ✠ Kaneohe, Hawaii; College of Physicians and Surgeons, Baltimore, 1911; member of the American Psychiatric Association; medical director of the Territorial Hospital; aged 50; died, June 18.

Walter A. Murphey, Parkesburg, Pa.; University of Pennsylvania Department of Medicine, Philadelphia, 1878; formerly school director and member of the board of health in Parkersburg; aged 82; died, June 18.

Robert Paul Jones, Norfolk, Va.; University of Virginia Department of Medicine, Charlottesville, 1900; formerly member of the city health department; aged 60; died, June 3, in the Norfolk General Hospital, of uremia.

Ernest Frederick Apeldorn, Philadelphia; Jefferson Medical College of Philadelphia, 1881; Hahnemann Medical College and Hospital of Philadelphia, 1904; aged 78; died, June 12, of chronic myocarditis and nephritis.

Peter Jurjens Pothuisje ✠ Denver; Starling Medical College, Columbus, 1893; fellow of the American College of Physicians; on the staff of St. Joseph's Hospital; aged 71; died, June 4, of bilateral pyelonephritis.

George Fred Hart, Webster, Mass.; University of Vermont College of Medicine, Burlington, 1884; member of the Massachusetts Medical Society; formerly state senator and bank president; aged 77; died, June 1.

Seth Eugene Miller ✠ Oberlin, Ohio; Starling Medical College, Columbus, 1896; formerly coroner of Lorain County; aged 66; on the staff of the Allen Hospital, where he died, June 10, of chronic myocarditis.

George Frederick Laidlaw, New York; New York Homeopathic Medical College and Hospital, 1890; aged 66; died, June 22, of carcinoma of the bladder with metastases to the lungs, pubic bones and skin.

Joseph Patrick O'Reilly, Staten Island, N. Y.; University and Bellevue Hospital Medical College, New York, 1909; on the staff of the Richmond Memorial Hospital; aged 63; died, June 6, of heart disease.

William Beckwith Fuqua Jr., Radford, Va.; Medical College of Virginia, Richmond, 1931; college physician at the Radford State Teachers College; aged 34; died, June 29, in the Gale Hospital, Roanoke.

Lila Gertrude Schieffelin, Buffalo; Woman's Medical College of the New York Infirmary for Women and Children, New York, 1891; aged 69; died, June 6, of carcinoma of the uterus with metastases.

Isaac W. Young, Langston, Okla.; Flint Medical College of New Orleans University, 1900; past president of the Agricultural and Normal University; at one time mayor of Boley; aged 63; died, June 8.

Hugh Hodge Hill, Locust Dale, Va.; University of Pennsylvania Department of Medicine, Philadelphia, 1895; member of the Medical Society of Virginia; aged 79; died, June 16, of cerebral hemorrhage.

William Grant Huffman, Richmond, Ind.; Western Reserve University Medical Department, Cleveland, 1896; served during the World War; city physician; aged 68; died, June 21, of chronic myocarditis.

Reinhold Willman, St. Joseph, Mo.; Ensworth Medical College, St. Joseph, 1902; member of the Missouri State Medical Association; aged 81; died, June 14, in Kansas City, of chronic myocarditis.

Howard W. Day ✠ Monessen, Pa.; Northwestern University Medical School, Chicago, 1899; formerly member of the state legislature; aged 66; died, June 1, of carcinoma of the liver and intestine.

Philip Francis O'Hanlon, New York; University of the City of New York Medical Department, 1886; formerly police surgeon; served during the World War; aged 74; died, June 10, of heart disease.

Harvey Alexander Price ✠ Port Carbon, Pa.; Medico-Chirurgical College of Philadelphia, 1916; aged 49; died, June 17, of a compound fracture of the base of the skull and suffocation, due to a fall.

John Edward Medley ✠ Philadelphia; Medico-Chirurgical College of Philadelphia, 1898; served during the World War; aged 63; died, June 4, of carcinoma of the pancreas with metastasis to the liver.

Frederick Carl Rawolle Jr., Greenwich, Conn.; Johns Hopkins University School of Medicine, Baltimore, 1937; aged 27; was found dead, June 11, in Stamford, of a self-inflicted bullet wound.

Edmund Peyton Lowe, New Orleans; Tulane University of Louisiana Medical Department, New Orleans, 1885; aged 77; died, June 24, of myocarditis, angina pectoris and arteriosclerosis.

Frank S. Furman ✠ Lincoln, Neb.; University of Nebraska College of Medicine, Omaha, 1930; on the staff of the Bryan Memorial Hospital; aged 37; died, June 6, of sepsis and pneumonia.

Benjamin Edel Helprin, Brooklyn; Long Island College Hospital, Brooklyn, 1903; served during the World War; aged 57; died, June 28, in the Jewish Hospital, of morphine poisoning.

Charles David Rawson, Des Moines, Iowa; Medical College of Ohio, Cincinnati, 1880; member of the Iowa State Medical Society; aged 85; died, June 19, of lobar pneumonia.

Karl Louis De Sombre, Fond du Lac, Wis.; University of the City of New York Medical Department, 1889; aged 75; died, June 28, of myocarditis, arteriosclerosis and nephritis.

Plato W. Robinson, Osawatomie, Kan.; Ensworth Medical College, St. Joseph, Mo., 1897; served during the World War; aged 60; died, June 17, at Carbondale, of heart disease.

Edwin Louis McAuliffe, Woodstock, Ill.; Rush Medical College, Chicago, 1882; aged 80; died, June 23, in the Michael Reese Hospital, Chicago, of carcinoma of the pancreas.

Frederick Edward Marscheider, New York; Bellevue Hospital Medical College, New York, 1895; aged 63; died, June 10, in St. Luke's Hospital, of chronic bronchitis.

Alice A. Stoddard McCullough, Rochester, N. Y.; New York Medical College and Hospital for Women, 1878; aged 81; died, June 1, of bronchopneumonia and arteriosclerosis.

George Francis Roberts, Allison Park, Pa.; Western Pennsylvania Medical College, Pittsburgh, 1902; aged 60; died, June 14, of coronary occlusion.

Israel L. McInnis, Edmonton, Alta., Canada; Manitoba Medical College, Winnipeg, 1892; aged 77; died, June 8, of hypostatic pneumonia and heart disease.

Thomas Jackson Davis, La Center, Ky.; Vanderbilt University School of Medicine, Nashville, Tenn., 1894; aged 71; died, June 7, of carcinoma of the colon.

Charles Dake, Hot Springs National Park, Ark.; University of Tennessee Medical Department, Nashville, 1881; aged 76; died, June 12, of arteriosclerosis.

John Wyatt McClain, Pelham, Ga.; University of Georgia Medical Department, Augusta, 1889; aged 69; died, June 10, of arteriosclerosis and diabetes mellitus.

George J. Eblen, Van Wert, Ohio; Eclectic Medical Institute, Cincinnati, 1880; aged 83; died, June 2, in the Van Wert County Hospital, of pneumonia.

Alexander F. McDonald, Wickford, R. I.; Medico-Chirurgical College of Philadelphia, 1898; aged 71; died, June 7, of heart disease and pneumonia.

James T. Elder, Farmington, Ga.; Georgia College of Eclectic Medicine and Surgery, Atlanta, 1887; aged 75; died, June 7, of bronchopneumonia.

Wyatt Farmer Simpson, Hot Springs National Park, Ark.; University of Arkansas School of Medicine, Little Rock, 1913; aged 54; died, May 28.

Frank B. Craddock, Sheridan, Wyo.; Barnes Medical College, St. Louis, 1903; aged 76; died, June 5, in the Sheridan County Memorial Hospital.

Frank Ageton Remde, Bottineau, N. D.; Rush Medical College, Chicago, 1933; aged 36; was shot and killed, June 17, by an intoxicated patient.

Charles Baxter Harwood, Houston, Texas; Rush Medical College, Chicago, 1905; aged 63; died, June 6, of carcinoma of the face with metastasis.

Laurie Longley Harrison, Halifax, N. S., Canada; McGill University Faculty of Medicine, Montreal, Que., 1904; aged 57; died suddenly, June 30.

John Elijah Underwood, Waveland, Ark. (licensed in Arkansas in 1903); aged 72; died, June 1, in a hospital at Russellville.

Robert William Dress ✠ Tamaqua, Pa.; Jefferson Medical College of Philadelphia, 1923; aged 38; died, June 7, of coronary sclerosis.

Newbern Nuckolls Brown ✠ Bakersfield, Calif.; College of Physicians and Surgeons, Los Angeles, 1905; aged 54; died, May 30.

John C. Graham, Trinity, Ky.; Kentucky School of Medicine, Louisville, 1897; aged 69; died, June 2, of cerebral hemorrhage.

George W. Mayfield, Bruceville, Ind.; Kentucky School of Medicine, Louisville, 1892; aged 79; died, June 15, of senility.

John Jonas Kerr, Baltimore; Maryland Medical College, Baltimore, 1905; aged 55; died, June 9, of coronary thrombosis.

James Atkin Sewell, Rockwood, Tenn.; College of Physicians and Surgeons, Baltimore, 1879; aged 88; died, June 5.

Alonzo Martin, Bellmore, Ind.; College of Physicians and Surgeons, Keokuk, Iowa, 1878; aged 85; died, June 14.

William Clifford De Forest, Clarksburg, W. Va.; Baltimore Medical College, 1896; aged 71; died, June 13.

Ewing W. Miracle, Loyall, Ky.; Hospital College of Medicine, Louisville, 1898; aged 64; died, June 19.

John B. Huff, Taylorsville, Miss. (licensed in Mississippi in 1889); aged 71; died in June.

Queries and Minor Notes

THE ANSWERS HERE PUBLISHED HAVE BEEN PREPARED BY COMPETENT AUTHORITIES. THEY DO NOT, HOWEVER, REPRESENT THE OPINIONS OF ANY OFFICIAL BODIES UNLESS SPECIFICALLY STATED IN THE REPLY. ANONYMOUS COMMUNICATIONS AND QUERIES ON POSTAL CARDS WILL NOT BE NOTICED. EVERY LETTER MUST CONTAIN THE WRITER'S NAME AND ADDRESS, BUT THESE WILL BE OMITTED ON REQUEST.

OXIDATION AND TOXIC EFFECTS OF ALCOHOL

To the Editor:—1. A pamphlet issued by the National Distillers Products Corporation, New York, says that from 90 to 96 per cent of the alcohol taken is oxidized in the body. Is this statement true? If not, what percentage is oxidized? 2. In a lecture on alcohol which I attended, the speaker stated that alcoholic beverages, according to one observer, have produced albuminuria. 3. If this is true, what is it due to and what change does this substance undergo on aging?

M.D., Massachusetts.

ANSWER.—1. The statement concerning the amount of alcohol oxidized is correctly quoted from Atwater and Benedict (*Nat. Acad. Sc.* **8**:231, 1902). However, Voeltz and Baudrexel claim that as much as 12 per cent of the ingested alcohol may escape oxidation if the amount taken is large; for example, 3 cc. per kilogram of body weight (Emerson: Alcohol and Man, p. 8).

2. Alcohol itself does not produce albuminuria, although this condition is commonly found during the acidosis of delirium tremens.

3. Almost any foreign substance may gain entrance into alcoholic beverages, producing deleterious effects. Also raw distilled liquors usually contain small amounts of aldehydes, such as formaldehyde, acetaldehyde, butyl aldehyde and amyl aldehyde, which, by proper aging, are oxidized to their corresponding acids. These acids combine with alcohol to produce esters, which are relatively nonirritating and nontoxic. The aldehydes in raw liquors are probably responsible for some gastrointestinal irritation, but there is no evidence of kidney damage (Emerson: Alcohol and Man, pp. 211 and 221).

TOXICITY OF MATERIALS USED IN LINING BEER CANS

To the Editor:—I have a patient working for the American Can Company, engaged in handling chemical preparations used in lining the beer cans. He is suffering from a marked degree of secondary anemia, apparently a toxic type. The preparations used are known as LAC X21B, and Methyl-Ethyl-Kuprin (MEK) solvents, each having pronounced ethereal odors. I would appreciate knowing whether any industrial hazard exists and what measures are advised as a safeguard for health. Reference to articles or experts acquainted with the subject will be appreciated.

M.D., California.

ANSWER.—In the lacquer and solvent trade, MEK commonly refers to methyl-ethyl-ketone and not to methyl-ethyl-kuprin. The latter is not known as a chemical term but may constitute a particular trade name. The toxicity of methyl-ethyl-ketone is kindred in nature and extent to that of dimethyl ketone, commonly known as acetone. From animal experiments it is concluded that acetone possesses acute narcotic action, stronger than chloroform. The Bureau of Mines has reported experiments in which death took place when the concentration of acetone in the air reached 110 mg. per liter. Other workers, such as Flury and Zernik, have exposed animals to much higher concentrations without fatal outcome and apparently with increasing tolerance. Recently a group of Russian investigators (*J. Indust. Hyg.* **18**:117 [Feb.] 1936) reported that acetone is more toxic than methyl alcohol under certain specific conditions. However, it is to be doubted that either acetone or methyl-ethyl-ketone is correspondingly as toxic for man. Acetone, being a marked solvent for fats, may lead to a dermatitis from defatting, but as a general rule acetone is rather freely used in various industries without unusual precautionary measures and without known cases of intoxication. However, MEK is probably somewhat more toxic than acetone. Commercial products possibly may contain impurities of a character to complicate intoxication possibilities.

LAC X21B is believed to be a vinyloid synthetic resin solution prepared for the American Can Company by Stoner and Mudge of Pittsburgh. The exact nature of the material, as applied to beer cans, is not known. The statements now following are somewhat speculative but may serve to indicate the order of toxicity. Vinyl resins chemically are polymers derived from vinyl acetate, which in turn may be derived from acetylene. These resins are likely to be primarily dissolved in substances represented by the following possibilities: hexone (2 methyl, 4 pentanone), cellosolve acetate, carbitol acetate, N-butyl acetate, methyl cellosolve acetate, methyl acetate, ethyl acetoacetic ester, also methyl, 2-ethyl hexyl acetate, butyraldehyde and numerous other compounds. After solution of the resin, further thinning may be accomplished through the use of a wide range of diluents, including benzene, toluene, xylene, solvent naphtha, ketones, acetates and other esters, special petroleum fractions, hydrogenated naphthas and many others. Since the solvents and thinners used conceivably may vary from time to time under conditions of special needs, it is impossible precisely to appraise the extent of health hazard. In general, it may be recognized that some degree of hazard obtains, as the vapors of no solvents are entirely innocuous. In the absence of very harmful agents, such as benzene, toluene, xylene, solvent naphtha, butyl alcohol, methyl alcohol and chlorinated solvents, the general order of toxicity is low and apparently may be exemplified by the toxicity of ethylene glycol, which is believed to be limited to minor respiratory tract irritation, irritation of nasal passages and eyes, as commonly applied. Reference should be made to the article cited and to Hamilton's "Industrial Toxicology," published by Harper & Brothers in 1934. It is believed that the Division of Industrial Hygiene of the United States Public Health Service or the Bureau of Mines may best be in position to supply additional information. A somewhat pertinent article, entitled "Response of Guinea-Pigs to Vinyl Chloride Gas," by F. A. Patty, W. P. Yant and C. P. Waite, appeared in *Public Health Reports* (**45**:1963 [Aug. 22] 1930).

PERIOD OF POTENCY IN MAN

To the Editor:—What information can you impart concerning cases coming to the attention of the family physician wherein domestic felicity is beginning to be upset by men between the ages of 50 and 70 unable to perform the sex act to the satisfaction of their wives? These men apparently have considerable prostatic involvement but not sufficient to warrant surgical procedures. Can it be truthfully stated in the office to a wife making this complaint regarding impotence on the part of her husband that married life should have been fairly well carried out in this respect if a good sized family presents itself as evidence of a family duty being carried out faithfully and sufficiently for all reasonable demands? Are we to uphold the ideas that a husband to be really in love with his wife must during his entire life be a potent cave man? Please omit name and place.

M.D., Maine.

ANSWER.—The fact that a man has been able to impregnate his wife several times during their married life is absolutely no indication that his married life has been fairly carried out. It is a common experience that men who are suffering from rapid ejaculation, that is, that as soon as the penis has entered the vagina, ejaculation takes place, are repeatedly impregnating their wives without the latter experiencing any orgasm or deriving any sexual pleasure at all from the coital act. These women are in a worse situation than single girls, because they are sexually excited and are left in an ungratified sexual condition which at times reacts severely on the nervous system.

While it is not necessary for a husband to be a cave man, a normal man ought to be able to indulge in coitus, satisfactory to his wife and himself, beyond the age of 50. If not, his prostatic condition (as well as other functions) should be investigated, and if, as is generally the case, a marked congestion of the prostate and prostatic urethra is found, this should be treated not by operation but by gentle prostatic massage and instillations of weak silver nitrate solutions into the prostatic urethra. Of course there are other pathologic conditions leading to impotence in the male which should be diagnosed and properly treated.

OPERATIONS FOR BUNIONS

To the Editor:—Is the operation on the foot for removal of an enlarged joint ever successful? What are the chances of getting a stiff joint and what are its dangers?

WARREN W. ALGER, M.D., Detroit.

ANSWER.—It is inferred that the inquiry refers to enlargement of the metatarsophalangeal joint of the great toe, usually called a bunion. However, hallux valgus may exist without a bunion. A bunion is merely a painful and inflamed bursa, while hallux valgus is a valgus deformity of the joint and often exists without any pain. There are a number of different but quite successful and useful operations for bunions and none of them should leave a stiff joint.

Each type of operation has its definite place, depending on the size of the enlarged joint and to a certain extent on the type of foot. For the more severe cases the Mayo operation, consisting of excision of the head of the first metatarsal and turning in the bursal sac as a flap to make a new joint, is satisfactory. The foot with a long first metatarsal and great toe is better suited for the Mayo operation than is the short broad foot with a short first metatarsal and short great toe. For the less severe cases other operations are advisable, such as the Lapidus operation, in which the inner side of the first

metatarsal is exposed and the projecting portion of the enlarged head is excised and the base of the metatarsal is fused to the cuneiform and the second metatarsal, thus preventing spreading of the first metatarsal inward and away from the second.

There are other operations in which the enlargement and marginal overgrowths about the inner side of the head are excised. In the McBride operation the adductor tendon insertion is transplanted from the base of the first phalanx of the great toe to the outer side of the head of the metatarsal bone, the action of the transplanted adductor muscle bringing the first metatarsal toward the second and thus preventing the spread between these two bones. When this spread exists, the two sesamoid bones in the flexor tendons slip over into this interspace and at each step tend to increase the distance between the metatarsals.

In mild enlargements the wearing of shoes that will cause no pressure on the head of the first metatarsal often will give relief and prevent the development of a bunion. Hallux valgus need cause no discomfort even though quite a marked deformity is present. It is the wearing of shoes that causes the trouble. The rubbing of the foot against the shoe causes a bursa to develop over the head of the first metatarsal and as it becomes enlarged, thickened and inflamed the bunion is the result. If it were possible for people to go without shoes no such bursa would be produced and the hallux valgus would be of importance only because of its unsightliness.

HOUSE DUST ASTHMA AND ABDOMINAL DISTENTION

To the Editor:—A woman, aged 53, has had asthma for eight years. At the onset a sensitivity to house dust was noted. An antigen prepared from house dust appeared to aggravate the symptoms and was stopped. The early relief from epinephrine was replaced by reactions to it, and ephedrine, although giving some relief, was also unpleasant. Five or six years ago she was given one-fourth grain (0.016 Gm.) of morphine sulfate and 1/150 grain (0.4 mg.) of atropine sulfate for the attacks. They are now so frequent that she may take as many as four or five such tablets hypodermically daily. For the past year her abdomen has progressively enlarged. She is extremely nervous and cannot sit quiet for more than a few seconds. Her memory is impaired. Her weight is 95 pounds (43 Kg.), which is 30 pounds (13.6 Kg.) underweight. The pupils are dilated and equal but do not react to light or in accommodation. The lungs are at times full of wheezes and râles and at other times clear. The heart is in good condition. There is a postoperative hernia in the right lower quadrant at the site of an appendectomy scar. The superficial abdominal veins are dilated. There is marked tympany. A fluid wave can at times be found. Peristalsis has been noticed once. Borborygmus is marked. Her appetite is poor, but the bowels are regular and described as watery and dark. There is occasional vomiting with relief. An x-ray plate of the abdomen showed generalized distention. A barium sulfate enema could not be carried out. Is this a case of chronic atropine poisoning causing a generalized ileus? The patient is receiving 1 cc. ampules of prostigmin twice daily. Can relief be expected? The atropine has been discontinued. Will morphine alone for the attacks help? What treatment might be given to relieve this chronic distention?

M.D., New York.

ANSWER.—If the aggravation of symptoms was actually due to injections of house dust, this must be considered an important factor in the condition. Under such circumstances proper elimination of house dust by covering the mattress and pillows with rubberized covers and eliminating completely overstuffed furniture from the room should be of benefit. In addition, house dust injections should be of help if used in doses below those producing aggravation of symptoms. It is generally true that an antigen which can aggravate symptoms can produce relief if properly used in the right dosage. Since the patient was studied from an allergic point of view eight years ago, it is advisable to restudy her if she can be relieved for a sufficient time so that no drugs are necessary. Many drugs will interfere with the skin reactions. In addition, however, it is necessary to study the patient's general medical condition. The possibility of a gastro-intestinal malignant condition or of cirrhosis of the liver is suggested. Complete gastro-intestinal x-ray and stool examinations should be made. A more specific diagnosis of the cause of the abdominal distention is necessary before any effective treatment can be given for the condition.

It is not likely that either the atropine or the morphine used is responsible for the abdominal distention described, as no note is made of other symptoms of atropine poisoning (tachycardia, marked drying up of the secretions). The use of morphine to relieve asthma is contraindicated for two reasons. First, there is a real danger of death from the use of morphine in asthma because of the depression of the respiratory center. When morphine is combined with atropine, this danger is greatly increased because of its synergistic action and the drying of the bronchial secretions, making them more tenacious and therefore more difficult to bring up. The other danger from the use of morphine in a chronic condition such as asthma is that of addiction. The most important factor in giving relief in a case of this type is several nights of sufficient sleep. Chloral hydrate is frequently effective. After such rest is obtained, epinephrine solution subcutaneously used frequently (every two hours if necessary) in the minimum dose to produce relief will often work even in the face of previous failure.

CARDIAC ARRHYTHMIA AND INSURANCE

To the Editor:—A man, aged 29, was recently rejected for life insurance because of a cardiac arrhythmia. His past history is negative for all infectious diseases and symptoms of myocardial disease. Physical examination does not reveal evident foci of infection. There is no cardiac enlargement or murmurs. The pulse rate averages eighty beats per minute with about twenty-two premature contractions, which always disappear with exercise only to return on rest. The blood pressure is 118 systolic, 80 diastolic. Fluoroscopic examination of the chest is negative. An electrocardiogram reveals no structural disease and no other abnormalities except the ectopic beats. The Wassermann reaction is negative. Since he is entirely symptomless (except for the anxiety resulting from his rejection for insurance) is any treatment indicated and if so what? Is smoking contraindicated despite the fact that complete abstinence for months did not alter this condition? Would the condition have any bearing on his longevity? Would he be considered a "bad risk" if insured?

M.D., New Jersey.

ANSWER.—No treatment whatever is indicated in this case. With the examination as negative as it is, there is no reason for assuming an organic basis for the premature ventricular contractions. If absence from smoking for several months did not alter the condition, there is no reason for giving up smoking except that equally there is no reason for smoking. The premature ventricular contractions of themselves would not have any bearing on the longevity of the patient. It has been shown that the minute volume in these cases is not decreased, and if there are no organic changes responsible for the premature ventricular contractions there is no reason why he should not be considered a good life insurance risk.

DIABETES

To the Editor:—Please give me a definition of diabetes mellitus. How many grams of dextrose in the form of a balanced diet must a patient successfully metabolize in twenty-four hours to be considered nondiabetic?

M.D., Louisiana.

ANSWER.—In a recent monograph on diabetes (Joslin, E. P.: The Treatment of Diabetes Mellitus, Philadelphia, Lea & Febiger, 1935) the disease is defined as follows: "Diabetes is an hereditary disease, characterized by an increase of sugar in the blood and the excretion of sugar in the urine; it is dependent upon disease of the pancreas, particularly of its islands of Langerhans, which are functionally interrelated with other endocrine glands and the liver; the secretion of the islands of Langerhans, insulin, not only promotes the normal accumulation of glycogen in the liver, muscles and skin, and the combustion of glucose in the tissues, but also exerts a control upon the metabolism of protein and fat."

No exact number of grams of dextrose even with a balanced diet could be given to prove a patient nondiabetic. Too many other factors enter into the problem. The following statement, taken from page 249 of the last edition of the same monograph, might furnish the information desired:

"*Test for Recovery.*—Glycosuria and hyperglycemia shall be absent, while the patient is without diabetic medication, both before and an hour after a meal. This meal must contain at least two fifths of the carbohydrate for the day, The carbohydrate for the twenty-four hours shall comprise at least two thirds of the calories necessary to provide 30 calories per kilogram body weight. Better still, the carbohydrate tolerance shall be unimpaired as judged by a normal glycemic curve following the oral administration of 50 to 100 grams of glucose to the patient in the postabsorptive state.

"*Establishment of Recovery.*—A proved case of one or more months' duration, which conforms to the test for recovery at the beginning and end of an interval of five or more years, shall be considered cured."

As an introduction to the foregoing statements occurs this paragraph:

"*Curability of Diabetes and Criteria for Cures.*—It is yet too early to state that recovery from diabetes takes place. Just as a time limit is set before one speaks of recovery from cancer, so it should be in diabetes. But the problem in diabetes is not so easy as in cancer. A cure from cancer dates from the day of operation; in a diabetic's story no such definite date is available. Quite arbitrarily, therefore, the writer proposes the following standards to which cures from diabetes should conform and by which they should be classified."

URTICARIA AND PYURIA

To the Editor:—A man, aged 58, has had chronic urticaria for the past five years. Shortly before the hives made their appearance, pus was found in his urine. This condition has persisted along with the hives. At times he has had chills and fever when urinary dyes such as pyridium (phenylazo-2, 6-diaminopyridine monohydrochloride) were administered. The patient is a dynamic, high pressure type of individual. Many urticarial lesions are present at all times in their various stages. His teeth reveal a moderate degree of pyorrhea; the tonsils have been removed, and a general physical examination was otherwise essentially negative. The laboratory studies included blood count, the routine serologic test for syphilis and x-ray examinations of the chest and gallbladder, all of which revealed nothing of importance. A test meal revealed normal gastric acidity. Skin tests for hypersensitiveness to foreign proteins were all negative. Urinalysis revealed the presence of pus, from 200 to 300 cells per low power field in all examinations. The prostate is not enlarged, but the smears also revealed the presence of pus. I have felt that the nervous element and the pyuria are the important factors in the production of the patient's urticaria. All the urinary antiseptics have been tried in an attempt to clear the genito-urinary tract. Elimination diets have been tried. The patient has received all the known forms of therapy, and each time the result has been disappointing. I should like to have your comments on this case. Do you feel that a cystoscopic examination is indicated?

M.D., New Mexico.

ANSWER.—With regard to the appearance of such large quantities of pus in the urine of this patient, a complete urologic investigation should be instituted. First of all an excretory urogram should be made, and then a cystoscopic examination with catheterization of both ureters. The specimens from the kidneys as well as the one from the bladder should be stained for the ordinary infecting organisms and also for acid-fast organisms.

With regard to the urticaria and its relationship to the pus in the urine, it is difficult to state whether or not there is any connection between the two conditions. There is a form of urticaria which is on an infectious basis, but this is an extremely rare condition.

MICROCEPHALY

To the Editor:—I delivered a baby Dec. 31, 1935, with microcephaly. The fontanel closed soon after birth and the baby appears perfectly normal otherwise. She was the second child and was delivered as a vertex presentation without forceps. Both parents have negative Wassermann reactions and there is no history of any importance in their families. The baby has been examined by two child specialists, who advised that nothing can be done and that it is not an extreme case. To satisfy the parents I am writing for any possible suggestion that may be of benefit.

A. P. GUTTMAN, M.D., Winnipeg, Manit.

ANSWER.—In microcephalic infants it is usual for the fontanels and the sutures to be closed at birth or shortly thereafter. In these cases there is usually arrested development of the brain, or it may be imperfectly formed in portions or degenerated. A condition of microgyria (abnormal smallness of the convolutions of the brain) is frequently observed. The mental power of these infants is defective, muscular rigidity is sometimes present, and convulsions may occur.

When the microcephalus is of only slight degree, spasticity does not occur and some mental development may take place. It is obvious that a patient with a small cranium containing a small brain with retarded growth is not amenable to treatment. Craniotomy has been tried, though without benefit.

SHOULDER INJURY

To the Editor:—Two months ago a man, aged 53, was struck on the shoulder by a heavy bag. A subglenoid dislocation took place without fracture, but the circumflex nerve was injured. The dislocation was replaced easily, but there is no sign of nerve regeneration as yet. There is an area of numbness over the deltoid, some muscle wasting, and an inability to extend the arm from the body. What treatment would you advise, and what is the prognosis? Please omit name.

M.D., Wisconsin.

ANSWER.—Before answering the question satisfactorily it would be necessary to determine the degree of fixation from pericapsular adhesions that now are present in the shoulder. A severe injury to the shoulder of a person more than 40 years of age commonly leads to a rather marked degree of limitation of humeral scapular motion. If such limitation of motion is present, the adhesions should be broken up by manipulation under complete anesthesia. After this manipulation, or if there is no limitation of motion, this arm should be placed in the strap-hanger position (90 degrees abduction and 180 degrees external rotation) by means of a splint. This position relaxes tension on the nerves and the muscles which are necessary for abduction, external rotation and extension of the arm from the body.

The splint should be worn for at least six weeks but should be removed for an hour each day, during which time heat and massage may be employed and the arm gently moved through as much of a range of motion as is possible without occasioning severe pain.

Unless the clinical examination indicates a rupture or avulsion of the tendon of the supraspinatus muscle, open operation is not indicated. Better results and a greater degree of recovery following a crushing injury or partial avulsion of the nerves that supply the shoulder muscles will be obtained if the more conservative program is adhered to. Prognosis for a useful shoulder after three or four months may be considered a reasonable expectation.

WEIGHT REDUCTION

To the Editor:—A man, aged 42, whose height is 67 inches (170 cm.) and weight 210 pounds (95 Kg.), reports that he must of necessity reduce his body weight to 172 pounds (78 Kg.) by July 1 in order to meet the physical requirements of the position he now holds. He has always enjoyed the best of health, his weight has remained around 200 pounds (91 Kg.) continuously for the past twenty years and his appetite is moderate. His position necessitates a moderate amount of physical exercise. Physical examination is negative, the blood sugar and basal metabolic rate are normal and the blood pressure is 122 systolic, 80 diastolic. He does not present the picture of obesity but rather one of a well proportioned, stocky, muscular individual. Please comment on any possible dangers in the contemplated reduction in body weight and any medication that may be used to supplement diet and exercise.

M.D., Maryland.

ANSWER.—Authorities in nutrition and life insurance companies have taken the position that the best approach to an estimate of the ideal weight of the body is to permit a 10 per cent deviation from the weights given for height and age in the actuarial tables. In stocky persons the weight is considered satisfactory if it is 10 per cent over the figure in the actuarial tables.

In the case cited, the man being a "well proportioned, stocky, muscular individual," 170 pounds (77 Kg.) might be considered as the ideal weight. Therefore it would be unwise for this person to reduce more than to 170 pounds, but it should not be dangerous to effect this degree of reduction.

The treatment of obesity is ineffective unless the calories of the intake are lowered significantly below the requirement for the twenty-four hour metabolism. The rate of reduction will depend on how small the intake of calories is. Recently it has become the practice of many physicians to supplement low calory diets with a vitamin concentrate and calcium phosphate. Detailed directions for such a procedure are given by Russell M. Wilder (The Treatment of Obesity, *Internat. Clin.* **4**:1 [Dec.] 1933).

PREMENSTRUAL ASTHMA

To the Editor:—A patient is suffering from asthma. She is sensitive to many foods and to timothy. Her worse attacks and those most intractable to treatment, however, are present during the week preceding the menses. At this time the asthma increases in severity, reaching a maximum on the day preceding or the first day of the catamenia. There have been two pregnancies. The first terminated in the birth of a son about nine years ago and was accompanied by complete relief from asthmatic attacks, which returned within two weeks from the time the patient left the hospital; in other words, at the first postpartum menses. A second pregnancy during the past summer, which terminated at the fourth month, showed a similar state of affairs while it endured. What prospect of cure of these attacks (premenstrual) is held out by x-ray sterilization, and what clinical background is there for such treatment?

M.D., Connecticut.

ANSWER.—Unfortunately, we know of no statistical inquiry on a sufficiently large number of patients to supply us with a good answer to the question. The problem is similar to that in cases of severe migraine especially when it comes premenstrually and disappears during pregnancy. From an unpublished investigation of a fairly large series of cases of this type of migraine it appeared that an artificial menopause brought relief to about a third of the patients. The impression was that relief was obtained more often by the older women who were about due for a menopause anyway.

Some physicians who have experimented with the induction of the menopause in patients with premenstrual asthma have not been encouraged by the results and, unfortunately, in a number of the cases the condition was worse. In deciding what to do one must take into account at least two things: one, the present age of the patient, and the other, her nervous and psychic status. Asthmatic patients are commonly unstable, and unstable women often have a stormy menopause. A stormy menopause is more likely to make asthma worse than to cure it.

Doubtless efforts have been made to give this woman relief by administration of an estrogenic preparation. Occasional patients have been helped in this way. An effort might be

made also to raise the nervous threshold before the menstrual period by prescribing rest and perhaps a little phenobarbital.

Probably in these cases three factors unite to produce the asthmatic attack: one, perhaps a dust or other allergen; another, an increased irritability of the nervous system, and third, perhaps some toxic internal secretion. One is reminded of the cases of asthma in which in the fall certain pollens plus some food such as wheat will unite to produce the bronchial spasm. At that time the removal of wheat from the diet will bring relief. At other times of the year, when pollen is absent, wheat can be eaten with impunity.

LOSS OF HEARING AFTER ELECTRIC SHOCK

To the Editor:—A patient received a minor shock by coming in contact with an electric wire. There was no loss of consciousness. He claimed no injury except complete deafness of the left ear beginning immediately after the shock was sustained. Deafness of the right ear had been present long before as a result of chronic purulent otitis media. Examination of the left ear on the day following the injury revealed complete conduction deafness for Hartmann's tuning forks but all the forks were heard by bone conduction. The left ear drum was normal and there were no signs of labyrinthine involvement. The left eustachian tube was normal. There was no history of previous trouble with the left ear. The condition has remained unchanged during the past several months. Is it likely that the electric shock caused this condition?

M.D., West Virginia.

ANSWER.—It is possible that an electric shock of great intensity might involve the auditory nerve. Judging from the history in this case, in that there was "no loss of consciousness" and "merely a minor shock," it is difficult to make a definite statement. The fact also that there were no signs of labyrinthine involvement, and that bone conduction is still preserved, would incline one somewhat to the conclusion that no serious injury was sustained. It is possible, of course, that the bone conduction is perceived by way of the right ear, which has had a chronic purulent otitis media.

PYRETHRUM OINTMENT IN SCABIES

To the Editor:—I am advised that "pyrethrum ointment" is effective in the treatment of scabies. Will you comment on the suggested use of the widely used fly and insect spray fluids said to consist of a light petroleum oil impregnated with pyrethrum extract, in the treatment of scabies? Is there any danger in its use? It would seem to be readily available, inexpensive and an acceptable means of treating this often embarrassing infestation. H. S. BUCKINGHAM, M.D., Berwick, Pa.

ANSWER.—Pyrethrum ointment, which is usually prepared by dissolving from 25 to 30 per cent of pyrethrum extract in liquid petrolatum and then incorporating this in an inert ointment base, has been used in the treatment of scabies. It is stated that the physician may encounter a sensitivity to pyrethrum in "no more than one case in six hundred."

The widely used fly and insect spray liquids usually consist of ground flowers from which the pyrethrum is extracted with a petroleum distillate. "To this distillate extract are added 'camphor-sassafrassy,' methyl salicylate and traces of other compounds, the result being a powerful insecticide, the strength of which is standardized by testing on insects. A similar extract of pyrethrum flowers made with a heavier petroleum distillate, and di-ethyl phthalate is made to use as a cattle spray to repel flies" (Skin Hazards in American Industry, Pub. Health Bull. 215, Washington, D. C., p. 52).

Cases of dermatitis have been reported from contact with these insecticides. The sensitivity in some of the cases tested was to the Japanese insect flower from which the pyrethrum was extracted and to the petroleum distillate. In the report mentioned, twenty cases of dermatitis occurred during a period of two years in a factory employing about 100 people. This indicates a high degree of sensitivity as compared to the use of pyrethrum ointment and would make it dangerous for general use.

VISCOSITY OF BLOOD IN HYPERTENSIVE DISEASE

To the Editor:—Is there an increase of viscosity of the blood in high blood pressure cases? Many authors assert that there is, and some do not. I should like to know the latest thought on the subject.

CHARLES PERN ROBBINS, M.D., Winona, Minn.

ANSWER.—The general consensus is that in hypertensive arterial disease appreciable and significant increase in the viscosity of the blood does not occur. This statement applies to hypertensive arterial disease, but there are hypertensive states in which increased viscosity is presumed to be a factor. In the rare condition polycythemia vera, hypertension is common and is considered to result from the increased friction offered the flow of blood. In one series of cases of arterial hypertension this accounted for one case in 750. The hypertension associated with eclampsia and preeclampsia may be due in part to greater blood viscosity, although arterial spasm is responsible for the greater portion of the rise. In eclampsia the blood is highly concentrated and more viscous than normal. These two exceptions to the general rule, however, must not be considered as being hypertensive arterial disease (so-called essential hypertension).

FRIEDREICH'S ATAXIA

To the Editor:—Have you anything in your files on the treatment of Friedreich's ataxia? There is nothing given in textbooks, unless there is something newer than textbooks, possibly in exercises or therapy. If anything is available, where? I have a patient here with this, and the parents would at least like to try something if it has any possible merits.

ARTHUR J. GRIOT, M.D., Chadron, Neb.

ANSWER.—This disease is chronic, it is familial, and it usually occurs in pairs in sisters or brothers. The prognosis for life is good and for cure is poor. The only treatment outside of symptomatic therapy that can be recommended is that for the ataxia. This is usually carried out by means of reeducation exercises, starting with simple maneuvers and gradually increasing to more complicated exercises. The amount of change that may take place in the ataxia will of course depend on the extent of the damage to the cerebellar and spinocerebellar tracts. Goldscheider in an article entitled "Anleitung zur Uebungsbehandlung der Ataxia," Leipzig, 1904, has collected and described the Frenkel exercises very clearly. One should not become too enthusiastic with regard to these exercises because they do not cure the disease. The parents should be informed of this point.

TUTOCAIN HYDROCHLORIDE IN SEASICKNESS

To the Editor:—Will you kindly inform me of the use of tutocain in the external auditory canals (and ear drums) for the prophylaxis and treatment of seasickness? Some time ago an article appeared in *Time* magazine about its use with almost magical results, and if such really is the case, I should like to be "in on it."

JOHN SEALY PEEK, M.D., Brownsville, Texas.

ANSWER.—Tutocain hydrochloride is used to produce local anesthesia on mucous membranes. As the mechanism whose stimulation produces vertigo and seasickness consists of the semicircular canals and other structures of the vestibular mechanism in the inner ear, it is inconceivable how instillation of a solution of tutocain into the external auditory canal or against the drum membrane can in any way influence the static apparatus. From time to time miraculous measures are cited or medicaments proclaimed for use in the prevention or relief of seasickness. While it is true that sedatives taken internally may lessen the sensitivity of the vestibular mechanism to a certain degree, the greatest measure of relief as a rule is found in having the individual lie perfectly flat. Then with the rolling of the boat only the horizontal canals will be stimulated rather than the vertical; and it is the latter whose stimulation gives the greatest degree of vertigo. As stated before, the local application of tutocain or any similar drug to the external auditory canal would not be likely to have any beneficial effect.

COMPENSATION IN EYE INJURIES

To the Editor:—I am writing to you for information concerning a compensation case. A man, aged 29, whose left eye is normal, injured his right eye about a year ago and since that date a cataract has slowly developed. What improvement should I expect from an extraction and proper refraction of this eye? Also from an industrial standpoint is this operation advisable? JAMES W. FRAZIER, M.D., Charleston, W. Va.

ANSWER.—This brings up a much discussed question that has never been decided satisfactorily. From the ophthalmic standpoint, removal of the traumatic cataract is advisable for several reasons: 1. It provides a good reserve eye in case of accident to the other. 2. It permits of lateral vision beyond the field of the other eye, which vision, although not clear, is of use. 3. It prevents the amblyopia of disuse. In contrast to these advantages, there is the possibility of subsequent diplopia, a rather rare occurrence, but extremely unpleasant when it does happen. Of course, the two eyes cannot be used simultaneously, although work now under way is in the direction of providing a minimizing glass for the eye that has been operated on which will permit of the simultaneous use of an aphakic and a nonaphakic eye. From an industrial standpoint the operation is advisable. From a compensation standpoint the boards do not differentiate between an eye with a traumatic cataract and the same eye with the lens removed, regardless of the final vision.

TOXICITY OF SOLDERING PROCESS

To the Editor:—During the last few weeks I have been seeing several patients with upper respiratory symptoms who have been working with a soldering salt that is manufactured by the L. B. Allen Manufacturing Company of Chicago. This particular preparation in soldering casts off fumes that are quite irritating in the nasal and respiratory passages. Will this preparation, the contents of which I do not know, cause any chronic condition from prolonged exposure? Also would there be any scientific way of eliminating its immediate irritation?

J. W. EBERT, M.D., Everett, Wash.

ANSWER.—This reply is without particular reference to any one product. Soldering is such a general term that its mere mention fails to reveal the type of operation that possibly may be involved. Soldering may be hard (brazing) or soft (usually with lead and tin); soldering may unite copper, lead, tin, zinc, iron or aluminum. In each instance, different fluxes may be employed. The assumption is that the soldering leading to this query makes use of the customary lead and tin mixture. In this case the flux may be a liquid, paste or salt. The salt in commonest use is zinc chloride. Zinc chloride fume may be produced but more likely the fume of hydrochloric acid is present. Such fume is irritating to the respiratory tract. Acute inflammatory disease may arise and is common among solderers. Near sighted persons working closely at hand soldering are especially apt to become involved. No specific chronic disease is known to arise—rather an endless series of repeated minor acute episodes. Conditions are now much better in this trade, owing to an increased extent of automatic soldering. Suction systems can be so constructed as to remove the irritant fume at the point of origin.

HEMIPLEGIA AFTER ELECTRIC SHOCK

To the Editor:—A man, aged 55, received 2,300 volts while repairing an electric transmission line. His face was burned, and his forehead and ears became swollen and there was a discharge for several months. Six months later a right sided hemiplegia developed. From a legal standpoint what connection does this accident have directly or indirectly on this hemiplegia?

M.D., Indiana.

ANSWER.—The amount of injury caused by electric currents depends on the voltage and ohmic resistance, on the duration and extent of the contact, and also on the presence of clothing or gloves. The query does not state whether there was unconsciousness, slow pulse, vomiting, convulsions or twitchings. In exposures to electric current, transient paralyses may follow the convulsions or appear in their absence. The paralytic signs may not be evident at once but develop gradually weeks or months after the accident. If one can show a causal relationship between the electrical exposure and the onset of cerebral symptoms at once or very soon after the accident, one may say that the hemiplegia was the result of multiple small hemorrhages and softenings in the brain superinduced by electricity.

TONSILLECTOMY IN SYPHILIS

To the Editor:—What contraindication would there be, if there is any at all, to tonsillectomy in a girl, aged 18 years, who has been receiving arsenicals during two months for a positive Wassermann reaction? It has not been definitely determined whether infection was acquired or congenital. The general condition of the patient is very good.

M.D., South Carolina.

ANSWER.—For many years the consensus has been that no operation of the throat should be performed during the time the Wassermann reaction is positive. In an emergency, of course, an operation might be undertaken, the patient carefully watched at that time, and treatment vigorously carried out. But a tonsillectomy is certainly no emergency, and therefore the operation should be done only if the Wassermann reaction is negative.

PNEUMOPERITONEUM

To the Editor:—In pneumoperitoneum, that is, introduction of air inside the peritoneal cavity, how do we know that the tip of the needle is already free in the peritoneal cavity? Kindly give me information as to the manometer readings.

JOSE A. MENDIOLA, M.D., Pateros, Philippine Islands.

ANSWER.—The simple method is to employ a syringe with a fine cannula, filled with physiologic solution of sodium chloride. The needle is cautiously inserted and at the same time pressure is made on the piston of the syringe. Prompt flow of the saline solution indicates that the needle has reached the abdominal cavity. With the patient turned on one side, preferably the right, the site of puncture is chosen in the middle of the rectus muscle from 3 to 5 cm. below the umbilicus. The bladder should be emptied just before the insertion of the needle and the skin thoroughly cleansed with tincture of iodine. The needle is slowly advanced as far as the fascia, when very gentle pressure will ease it through the fascia and the peritoneum into the peritoneal cavity.

BOOKS ON ELECTROTHERAPY AND ELECTRO-COAGULATION

To the Editor:—What books do you recommend for (1) electrotherapy, (2) showing methods of removal of warts by electrodesiccation, (3) treatment of ulcer of the skin by electrocoagulation, and (4) electrocoagulation of the tonsils.

E. S. COSTER, M.D., Solomons, Md.

ANSWER.—The following books are recommended to cover the points mentioned:

Kovacs, Richard: Electrotherapy and Light Therapy, Philadelphia, Lea & Febiger, 1935, $7.50; reviewed in THE JOURNAL, Feb. 8, 1936, p. 492.

Handbook of Physical Therapy, Chicago, American Medical Association, 1936, $2.

Mock, H. E.: Principles and Practice of Physical Therapy, Hagerstown, Md., W. F. Prior Company, 1934, vol. 3; $35; reviewed in THE JOURNAL, April 7, 1934, p. 118.

Andrews, G. C.: Diseases of the Skin, Philadelphia, W. B. Saunders Company, 1930, $12; for removal of warts by electrodesiccation, p. 879, and treatment of ulcer of the skin by electrocoaguation, chapter 10, p. 251.

TOLERANCE TO ETHER

To the Editor:—A dental surgeon has asked me to test an asthmatic patient for ether before he attempts the extraction of many abscessed teeth. Is there any way of doing this except by starting an anesthesia? Is a person ever allergic to ether? This patient is slightly allergic to procaine hydrochloride.

M.D., Illinois.

ANSWER.—The best way of testing a person's tolerance for ether is to administer by inhalation a very small quantity diluted. Certain persons may not tolerate ether but they are not known to be allergic to it; for example, soldiers who have been gassed in warfare do not tolerate ether well but show no evidence of allergy to it. The fact that the patient is slightly allergic to procaine would not indicate that there would be a tendency to be allergic to ether.

CONTROL OF EFFECTS OF PERIVASCULAR INJECTION OF CALCIUM CHLORIDE

To the Editor:—Kindly let me know what has been found most effective to control the pain and the sclerotic effect produced by the accidental perivascular injection of a 10 per cent solution of calcium chloride.

M.D., Los Angeles.

ANSWER.—Whenever an irritative intravenous injection, such as that of calcium chloride, is given, one should have at one's elbow a dish of sterile water, which might contain a small proportion (0.1 per cent) of procaine. Should perivascular injection occur, one should inject immediately and through the same needle enough of this fluid to distend the tissue liberally so as to dilute the noxious solution as much as possible. It is of course advisable, before doing this, to aspirate as much of the paravenously deposited fluid as one can.

BLOOD TYPING

To the Editor:—1. In what type or group of direct blood matching is the probability of error most commonly encountered? 2. In the event that a small spot of blood, approximately one-fourth inch in diameter, was found on a piece of cotton or silk and rayon material and such a spot had been on this garment for a period of ten to twelve days and then the material had been placed among dirty clothes and then exposed to some sunlight and heat of normal temperature in a residence, with some dampness usually found in a basement of such residence, what is the probability of error in typing this blood, and is there more probability of error in typing I, II, III or IV Moss classifications? 3. Is there any possible way of determining the type of blood on a piece of cloth that has been washed in water, the red stain remaining?

V. L. CHAMBERS, M.D., Huntington, W. Va.

ANSWER.—1. In the hands of competent investigators there should be no error in blood typing at all. The most frequent mistake is to assign incorrectly a blood to group AB owing to failure to recognize pseudo-agglutination. On the other hand, blood of group AB, particularly the subgroup A_2B may be taken for group B by overlooking weak A reactions.

2. Under the conditions described, the determination of the blood group may be difficult or even impossible. However, a mistake should not be made because the absence of any positive reaction would not warrant a conclusion. In other words, unless a clear-cut result is obtained, no opinion can be offered.

3. The determination of the blood group will probably not be feasible in such material.

EFFECTS OF TOBACCO ON CIRCULATION

To the Editor:—Would tobacco be a possible etiologic factor in occasional numbness of the distal parts of both upper and lower extremities, coming on as an exaggeration to a similar numbness caused by cramped positions in healthy individuals? Does tobacco contribute to impairment of the vestibulomotor system, causing periodic dizziness noted particularly while in the act of smoking? Does it cause labyrinthitis? (It is assumed that patients complaining of these symptoms are what would be considered excessive smokers.) M.D., Ohio.

ANSWER.—The act of smoking tobacco causes diminution of the circulation to the extremities and might in certain hypersensitive individuals be responsible for the symptoms of numbness of the acral parts. It should not, however, be considered an etiologic factor until all other possibilities have been surveyed. Many persons who smoke have noted a sensation of dizziness and unsteadiness of gait while smoking. Excessive smoking might stimulate the labyrinths but it is not certain that it might produce definite organic changes, although amblyopia from tobacco smoking is well known.

JOINT PAINS IN SERUM SICKNESS

To the Editor:—In THE JOURNAL, Nov. 28, 1936, on page 1830, you published a letter concerning atrophic arthritis contracted through serum disease. In your answer you made the statement that "joint pains have been known to exist for quite some time following serum sickness." Will you kindly let me know by letter what your authorities are for that statement, and for what lengths of time joint pains have been known to continue. M.D., New York.

ANSWER.—The statement with reference to the length of time which joint pains may persist following serum disease was confusing. A careful search of the literature shows that they usually last but a few days and rarely as long as three weeks. In an occasional case the joint pains, without swelling, occurring during a serum reaction have persisted longer.

PRECIPITIN SERUM FOR TESTING FOR HUMAN BLOOD

To the Editor:—I am writing you for some information. Police officers submitted several bits of flesh and bone marrow to me for examination. To make possible identity as to whether bits of flesh were of human origin or not, I purchased human precipitin serum, which was used in the test. The results were not satisfactory. Can human precipitin serum be purchased to be used for determining the identity of human blood? If you would make suggestions on how this examination should be handled, I would be grateful. HARRY FALCONER, TECHNICIAN, Sioux Falls, S. D.

ANSWER.—Precipitin serum for testing for human blood can be purchased. The potency of such serum must be determined beforehand in every case in which it is used. Directions for the preparation of precipitin serum are given in textbooks on immunology; see also Hektoen, Ludvig: The Precipitin Test for Blood, THE JOURNAL, May 4, 1918, p. 1273, and Biologic Tests for Medicolegal Purposes, *New England J. Med.* **199:** 120 (July 19) 1928.

DESENSITIZING TO MOSQUITO BITES

To the Editor:—Do you know of any material that can be given orally or by injection which will desensitize persons to the undue effects of bites by mosquitoes? I am referring to the toxic manifestations of the bite itself. ELMORE R. BAILEY, M.D., Lakewood, Ohio.

ANSWER.—There have been many attempts to desentitize man to the ill effects due to bites of the mosquito and in a high percentage of these tests the results have been entirely negative. There are no successful preparations available, for either oral or hypodermic use, which will diminish the intensity of reaction following the bite. Most persons seem to acquire considerable resistance after frequent bites, and reactions are usually less severe late in the mosquito season than early.

CYSTITIS WITH IMPOTENCE

To the Editor:—With reference to the question sent in by a physician from Illinois, entitled "Cystitis with Impotence—Addiction to Hypnotics" (THE JOURNAL, August 14, p. 527), I wish to take exception to the answer given to the doctor's inquiry regarding the first patient (cystitis with impotence). In the first place, nowhere in the answer do you suggest that an attempt be made to make a definite diagnosis; in other words, a complete cystoscopic examination. Here is a patient 53 years of age with about 1½ ounces of residual urine. This may easily indicate a middle lobe enlargement of the prostate or at least a median bar. I believe a very good way to get any drug into disrepute is to recommend its promiscuous use, such as has been done here with ammonium mandelate, without careful investigation of the patient's genito-urinary tract.

JAMES H. BORRELL, M.D., Buffalo.

Medical Examinations and Licensure

COMING EXAMINATIONS

STATE AND TERRITORIAL BOARDS

Examinations of state and territorial boards were published in THE JOURNAL, September 4, page 814.

NATIONAL BOARD OF MEDICAL EXAMINERS

NATIONAL BOARD OF MEDICAL EXAMINERS: *Parts I and II.* Sept. 13-15. Ex. Sec., Mr. Everett S. Elwood, 225 S. 15th St., Philadelphia.

SPECIAL BOARDS

AMERICAN BOARD OF DERMATOLOGY AND SYPHILOLOGY: *Written examination for Group B applicants* will be held in various cities throughout the country in April. *Oral examination for Group A and B applicants* will be held at San Francisco in June. Sec., Dr. C. Guy Lane, 416 Marlboro St., Boston.

AMERICAN BOARD OF INTERNAL MEDICINE: *Written examination* will be held in different centers of the United States and Canada, Oct. 18. Chairman, Dr. Walter L. Bierring, 406 Sixth Ave., Rm. 1210, Des Moines, Iowa.

AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY: *Written examinations and review of case histories for Group B candidates* will be held in various cities of the United States and Canada, Nov. 6 and Feb. 6. *Application must be filed at least sixty days prior to these dates. General oral, clinical and pathological examinations for all candidates (Groups A and B)* will be conducted in San Francisco, June 13-14. *Application for admission to Group A examinations must be on file before April 1.* Sec., Dr. Paul Titus, 1015 Highland Bldg., Pittsburgh (6).

AMERICAN BOARD OF OPHTHALMOLOGY: Chicago, Oct. 9, and San Francisco, June 13. *All applications and case reports, in duplicate, must be filed at least sixty days before the date of examination.* Sec., Dr. John Green, 3720 Washington Blvd., St. Louis, Mo.

AMERICAN BOARD OF ORTHOPAEDIC SURGERY: Los Angeles, Jan. 14-15. Sec., Dr. Fremont A. Chandler, 6 N. Michigan Ave., Chicago.

AMERICAN BOARD OF OTOLARYNGOLOGY: Chicago, Oct. 8-9. Sec., Dr. W. P. Wherry, 1500 Medical Arts Bldg., Omaha.

AMERICAN BOARD OF PEDIATRICS: Chicago, Oct. 17; Los Angeles, Nov. 7; Boston, Nov. 14, and New Orleans, Nov. 30. Sec., Dr. C. A. Aldrich, 723 Elm St., Winnetka, Ill.

AMERICAN BOARD OF PSYCHIATRY AND NEUROLOGY: New York, Dec. 28 (tentative). Sec., Dr. Walter Freeman, 1028 Connecticut Ave., N.W., Washington, D. C.

AMERICAN BOARD OF SURGERY: *Part I (written),* Oct. 20. Sec., Dr. J. Stewart Rodman, 225 S. 15th St., Philadelphia.

Louisiana June Report

Dr. Roy B. Harrison, secretary, Louisiana State Board of Medical Examiners, reports the written examination held at New Orleans, June 3-5, 1937. The examination covered 12 subjects and included 100 questions. An average of 75 per cent was required to pass. One hundred and forty-nine candidates were examined, 148 of whom passed and one failed. Ten physicians were licensed by reciprocity. The following schools were represented:

School	PASSED	Year Grad.	Per Cent
Emory University School of Medicine		(1937)	84.6
Louisiana State University Medical Center	(1937) 81,* 81.5, 81.8,* 81 9,* 81.9,* 81.9,* 82, 82.1, 82.2,* 82.8,* 82.9,* 83,* 83.3,* 83.4,* 83.6,* 83.7,* 83.7,* 83.8, 83.8,* 83.9,* 83.9,* 84, 84.1, 84.2,* 84.3,* 84.3,* 84.4,* 84.4,* 84.4,* 84.6,* 84.7,* 84.7,* 84.7,* 84.8,* 84.8,* 84.8,* 84.8,* 84.9,* 85,* 85.2, 85.2, 85.2,* 85.3,* 85.4, 85.4,* 85.6, 85.6,* 85.8,* 85.9,* 86.1,* 86.2,* 86.3,* 86.4,* 86.5,* 86.8,* 87.3,* 89.3*	(1936)	82.8,
Tulane University of Louisiana School of Medicine	(1937) 78.7, 78.8, 79.8, 80, 81, 81, 81.1, 81.3, 81.3, 81.5, 81.7, 81.7, 81.7, 81.8, 81.9, 81.9, 81.9, 82, 82.1, 82.5, 82.5, 82.6, 83, 83, 83, 83.1, 83.2, 83.2, 83.2, 83.3, 83.4, 83.4, 83.4, 83.5, 83.7, 83.8, 83.8, 83.8, 83.8, 83.8, 83.9, 83.9, 84, 84, 84, 84.2, 84.2, 84.2, 84.3, 84.4, 84.4, 84.4, 84.4, 84.4, 84.4, 84.5, 84.6, 84.6, 84.6, 84.7, 84.7, 84.9, 85, 85, 85, 85, 85.2, 85.2, 85.3, 85.5, 85.5, 85.5, 85.6, 85.6, 85.7, 85.7, 85.8, 85.8, 85.8, 85.9, 86.6, 87.1, 87.2, 87.3	(1936)	81.1,
St. Louis University School of Medicine		(1931)	85.5
University of Oregon Medical School		(1936)	78.3
University of Pennsylvania School of Medicine		(1936)	80.1
University of Tennessee College of Medicine		(1937)	78.2
Marquette University School of Medicine		(1937)	84.5

School	FAILED	Year Grad.
University of Illinois College of Medicine		(1937)

School	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
University of Arkansas School of Medicine		(1935)	Arkansas
University of Colorado School of Medicine		(1931)	Colorado
University of Illinois College of Medicine		(1930)	Illinois
University of Louisville Medical Department		(1910)	Arkansas
Johns Hopkins University School of Medicine		(1932)	Maryland
Harvard University Medical School		(1933)	Maine
University of Michigan Medical School		(1929)	Michigan
Meharry Medical College		(1934)	Missouri
University of Tennessee College of Medicine		(1933), (1935)	Tennessee

* This applicant has received the M.B. degree and will receive the M.D. degree on completion of internship. License has not been issued.

Book Notices

The Fundamentals of Electrocardiographic Interpretation. By J. Bailey Carter, M.D., Clinical Instructor, Department of Medicine, Rush Medical College, the University of Chicago. With a foreword by Horatio Burt Williams, M.D., Dalton Professor of Physiology, College of Physicians and Surgeons, Columbia University, New York. Cloth. Price, $4.50. Pp. 326, with 251 illustrations. Springfield, Illinois, & Baltimore: Charles C. Thomas, 1937.

This new book on clinical electrocardiography has been prepared for the beginner in the subject. Its arrangement is good and its text is clear and simple. The case histories in chapter XXXIII, the glossary and the bibliography of recent contributions to electrocardiographic literature arranged according to subject (for example, alternation, angina pectoris, diphtheria, low voltage, nicotine and T wave) should be especially useful. The book begins with a statement of the value of the electrocardiogram in clinical practice, goes on to discuss the principles and technic of electrocardiography, and presents the normal waves, or complexes, and the intervals between them, in the first section of the volume, comprising thirty-five pages. The second section, comprising nearly a hundred pages, deals with the individual wave changes or abnormalities, axis deviation and ventricular preponderance, and the various arrhythmias, including disturbances of conduction of all kinds. A third part of the book of some sixty pages discusses the electrocardiographic observations in various clinical conditions, beginning with coronary occlusion in chapter XXII and including a chapter on chest leads. The book closes with a chapter on the clinical value of electrocardiography, twenty-five brief case histories with illustrative electrocardiograms, an appendix on certain technical aspects of electrocardiography, a glossary, and a bibliography of seventy-five pages.

The weakest part of the book is its illustrations, in which it should be strongest. There seem to be far too many. One hundred excellent, well selected characteristic electrocardiograms, including some of those already in the book, would be preferable to the bulk of the present 240, a good many of which are distinctly mediocre or practically duplicates, and a few open to question as to interpretation. With fewer illustrations there would doubtless be the added advantage of a lower price for the book. Incident probably to the multiplicity of illustrations, a few errors have crept in; for example, figure 143 is reversed from left to right.

The author follows the classic opinions throughout most of the book, incidentally holding to the old view concerning the axis deviation of bundle branch block and premature beats. He makes too much, however, of very slight slurring of the QRS waves, as in figures 43, 74 and 176, which most workers in the fields would now consider within the range of normal and not evidence of myocardial damage. Also he makes too much of the so-called Q wave in lead 3, which is a not uncommon occurrence in the case of obese but otherwise normal adults. One might take exception to a few statements such as that "thrombosis is the commonest cause of interference with the coronary circulation," page 129 (undoubtedly atherosclerosis with narrowing of the coronary artery lumen holds that rôle long before thrombosis takes place), and regret the omission in chapter XXIII of the contribution of Thomas Lewis and of Frank Wilson to the study of chest leads between the early days of electrocardiography and the routine introduction of the chest leads in 1932. For the most part, however, one may attest to the soundness of the text, which in its conciseness and clearness should be helpful to the beginner in electrocardiography.

Manuel de biochimie. Par Pierre Thomas, de l'Institut Pasteur, professeur de chimie biologique à la Faculté de médecine de Cluj. Cloth. Price, 180 francs. Pp. 978, with 51 illustrations. Paris: Masson & Cie, 1936.

This book is intended for physicians, biologists and those for whom biochemistry is "an indispensable science." The introductory chapter gives some of the modern views on atomic and molecular structure, valence and isotopes without the development of the fundamental facts in supporting them and without emphasis on their biologic significance. The chapter on the colloidal state has practically no application to biology. The author develops the idea of the building up of molecules of high molecular weight, such as proteins, polysaccharides and isoprene polymers, and a consideration of their x-ray structures. One wonders what this treatment can mean without first developing the organic chemistry of the simpler units of these colloids. The same criticism may be made of the too early presentation of special chapters on adsorption, surface tension, viscosity, osmosis, Donnan equilibrium, catalysis, cell permeability, enzymes and enzyme action. A series of excellent chapters cover the chemistry of amino acids and proteins, phospholipins, cerebrosides, carotenoids, sterols, fats and carbohydrates, and the distribution and function of inorganic elements in tissues and body fluids. The third part of eight chapters is devoted to the synthesis of tissue constituents and to their utilization. Here is a good treatment of the synthesis of carbohydrates and proteins in plants. There are separate chapters on the formed elements of the blood, the blood plasma, the vitamins, the hormones, digestion, muscle chemistry, the nervous system, the skin and skeleton, the reproductive organs, excretory products in animals and plants, with special emphasis on glucosides, terpenes, tannins and alkaloids. On the whole, the subject matter is presented clearly. The least satisfactory chapters are on vitamins, hormones and digestion. Each chapter is followed by instructions for a limited number of preparations and of qualitative and quantitative experiments. In most cases these instructions are given too briefly and uncritically to be of specific value. The author does not cite the specific references, but at the close of most chapters he gives a list of general works or monographs. These recommendations do not appear to be the best for critical consideration. The book is well indexed.

New and Nonofficial Remedies, 1937. Containing Descriptions of the Articles Which Stand Accepted by the Council on Pharmacy and Chemistry of the American Medical Association on January 1, 1937. Cloth. Price, $1.50. Pp. 557. Chicago: American Medical Association, 1937.

The substantial row formed on the library shelf by the successive volumes of New and Nonofficial Remedies represents a valuable service to the medical profession for more than thirty years. New and Nonofficial Remedies is being used by various purchasing agencies, hospital superintendents and others as a guide in authorizing purchases of nonofficial drugs. Somewhat paradoxically, a great many brands of official preparations are listed as "acceptable" in New and Nonofficial Remedies. These have been considered by the Council at the request of manufacturers who desire the added prestige of Council acceptance for their products. Heretofore such brands, when marketed under the official names, have been included by name in the "List of Articles and Brands Accepted by the Council but Not Described in N. N. R." Such accepted brands when marketed under a name other than the official one have been described in the body of the book. As a new departure the Council has this year transferred to the body of the book all accepted official products of which there is a brand marketed under a proprietary name. A striking example of this is found in the various brands of Solution of Posterior Pituitary. For years a well known brand of this preparation has been accepted by the Council as marketed under the name Pituitrin.

The following new drugs have been added in the 1937 edition: Kephrine Hydrochloride, another vasoconstrictor resembling Epinephrine; Botulinus Antitoxin, an antitoxic serum prepared from the toxin of Clostridium botulinum for prophylaxis and treatment of botulism; Tetanus Toxoid, Alum Precipitated, another alum precipitated toxoid; Oleum Percomorphum, a fish liver oil preparation of high potency in vitamins A and D. There are some noteworthy changes in classification. The various vasoconstrictors, Benzedrine, Ephedrine, Epinephrine and Neo-Synephrin, have been grouped together as phenylalkylamine derivatives under the heading "Epinephrine and Related Preparations." This terminology is in keeping with the Council's policy of avoiding therapeutically suggestive names. Another similar change is the abandonment of the classification "Medicinal Foods" and substitution of a chapter titled "Carbohydrate Foods, Chiefly Dextrose." The classification "Vitamin Foods" had been set up as an independent chapter under the title "Vitamins and Vitamin Preparations for Therapeutic and Prophylactic Use" in the previous edition. The consideration of other classes of food preparations was long ago transferred to the Council on Foods. The chapter

"Organs of Animals," which has heretofore included only endocrine preparations, has been expanded by transfers to this heading of the chapters Liver and Stomach Preparations, and Insulin.

Physicians who wish to know why a given proprietary is not described in New and Nonofficial Remedies will find the "Bibliographical Index to Proprietary and Unofficial Articles not Included in N. N. R." of much value. In this section (in the back of the book) are given references to published articles dealing with preparations that have not been accepted. These include references to the Reports of the Council, to Reports of the A. M. A. Chemical Laboratory and to articles that have appeared in THE JOURNAL.

Out of the Test Tube. By Harry N. Holmes, Ph.D. Second edition. Cloth. Price, $3. Pp. 301, with 102 illustrations. New York: Emerson Books, Inc., 1937.

No lesser adjective than "fascinating" describes this book adequately. Greeting his readers as modern Caesars, who enjoy the comforts of modern civilization by virtue of chemistry, from the soap in their morning baths to the motor cars and the fuel by which they are whisked to work, the author proceeds to show how chemistry is at the basis of everything we use. With chapter titles he woos the reader to look just a few pages further no matter how late the hour: "With Fire Man Rose Above the Beasts" is the story of oxygen; "The Importance of Nothing at All" deals with vacuums and the behavior of gases; "Language and Tools" is his approach to chemical symbols, weights and measures; "The Lightest Substance Known" is, of course hydrogen, and "The Elixir of Life," water. The chapters devoted to "atom smashing" bring ionization and allied phenomena within the comprehension, at least in a general way, of the reader whose chemistry is far behind him or who never had any. Numerous chapters are devoted to the chemistry of the objects of our everyday life—motor cars, steel and gasoline, aluminum, silks and cellulose, high explosives, insect poisons, dyestuffs and what has come out of their chemistry; sugars, fats, vitamins and minerals essential in the diet; bodily secretions, especially hormones; minerals and world power; and lastly a list of Nobel prize winners in chemistry. The author has an eye for that which will appeal to the average reader. He has a breezy style, with a bit of humor here and an incisive observation there, which leaves no dull page. For a better understanding of chemistry and what it means to us in our everyday life, as a contribution to general information, and for a delightful few hours of reading, this book cannot be too heartily recommended. Even the structural symbols of the carbon compounds are presented in a manner to stimulate curiosity. The book should be useful to teachers or to any one who desires a bird's-eye view of chemistry today.

Studies on the Bacterial Flora of the Respiratory Tract in Acute and Chronic Bronchitis, Bronchial Asthma, and Lung Gangrene. By Sverre Dick Henriksen, from the Bacteriological Laboratory of the Norwegian Army. Skrifter utgitt av Det Norske Videnskaps-Akademi i Oslo I. Mat.-Naturv. Klasse, 1936. No. 11. Paper. Price, 18 kroner. Pp. 241, with 14 illustrations. Oslo: Jacob Dybwad, 1937.

The author of this monograph has attempted to study the occurrence and significance of bacteria in certain pathologic conditions of the respiratory tract. The observations were made during the years 1933 to 1936 in the bacteriologic laboratory of the Norwegian army. While there have been excellent reports on special phases of the bacteriology of the respiratory tract, none have comprehensively evaluated the entire bacterial flora of the tract in relatively common ailments such as bronchitis and asthma.

The work is reported under three major divisions. First, the technic and methods are discussed. In this connection the author presents an account of his attempts to isolate gram-negative anaerobes by selective bacteriostasis with dyes. In thirty specimens of sputum the author was able to isolate fifteen strains of Fusiformis by cultivating the specimens in broth containing a piece of sterile raw potato and varying amounts of brilliant green or crystal violet. The second part of the monograph is devoted to the bacterial flora of the sputum in acute bronchitis, fetid infections of the bronchi and lungs, chronic bronchitis and bronchial asthma. The author discusses the bacterial flora of the respiratory tract in normal conditions and in the acutely infected state. Similar work reported in medical literature is reviewed and critically surveyed.

Of sixty-eight cases of acute bronchitis studied, the largest number of cases fell in a group in which one or two pathogenic organisms predominated and the normal saprophytic flora was displaced. The most important causal factors were Haemophilus influenzae, the pneumococcus and the hemolytic streptococcus. These bacterial species were found to be the most frequent cause of acute bronchitis. The demonstration of antibodies against these organisms in a few of the cases seems to strengthen the author's belief of the etiologic relationship. In a few specimens, intestinal bacteria were found and the author explains their presence as embolic from infections in the gastrointestinal tract.

A chapter is devoted to fetid infections of the lungs and bronchi. The number of cases reported is small. Spirochetes seemed to have a minor rôle and the author cites the experimental evidence that fetid infections may be produced by injecting material that contains no spirochetes. The specific causation was not determined by this study. The occurrence and significance of bacteria in chronic bronchitis and asthma is next discussed. A short account of each case is given at the end of the monograph.

In addition to the bacteriologic investigations of the sputum, the author presents supplementary studies on serology, allergy and experimental work which are pertinent to the investigation. He concludes that Haemophilus influenzae, Diplococcus pneumoniae and Streptococcus haemolyticus are the most frequent causes of acute bronchitis and assigns an important rôle to Haemophilus influenzae as a primary factor in predisposing to fetid infections of the lung. Three different types of bacterial flora were demonstrated in asthma and chronic bronchitis. The pertinent literature, while not exhaustively reviewed, is well handled.

Carcinoma of the Female Genital Organs. By M. C. Malinowsky and E. Quater. Translated from the Russian by A. S. Schwartzmann, A.B., M.D. Cloth. Price, $5. Pp. 255, with 50 illustrations. Boston: Bruce Humphries, Inc., Publishers, 1936.

This Russian volume, which presumably presents the views of the present Russian leaders in a special branch of medicine, has been read with interest. The *Cumulative Index Medicus* has been scanned over a period of six or seven years in an effort to identify the eleven authors who have contributed to the work, with failure to secure any enlightenment as to their hospital positions or previous researches and publications. It would seem that the translator has missed an opportunity in not furnishing this kind of information in an introduction, however short. He or the publishers also should have given the date of publication of the original Russian edition. The practical as well as the scientific value of the eleven monographs would be greatly enhanced if they had been accompanied by an index and by accurate documentation. While there is frequent reference throughout the entire book, by name and sometimes by location, to various experts, many of them German, there are practically no bibliographic references to enable the reader to refer to the originals. The printing is well done but the illustrations are mediocre; three are taken from Thomas S. Cullen's monograph on Cancer of the Uterus, written many years ago. There is much repetition, a common defect in books written by multiple authors, and while the style varies from author to author, it is, in general, involved. This may be, perhaps, a necessary consequence of translation. The general impression made on the reader is that, in this particular branch, Soviet medicine is well advanced and that there is also adequate information as to foreign work.

In addition to dealing with the usual forms of gynecologic cancer, there is a chapter devoted to mammary carcinoma. The sections dealing with the general etiology of cancer, with the especial symptomatology and diagnosis of cancer of the various organs, is well covered. In chapter V, on metastatic cancer of the ovary, Dr. Thomas J. Pajarissky thoroughly reviews the literature and incorporates some original work on the lymphatics of the abdomen, which throws some light on the reason for the ovary being such a common focus of metastatic malignancy. From the point of view of treatment, the sections dealing with the surgical procedures in uterine and mammary

cancers are much more thoroughly done than the corresponding sections on ray treatment. Ray therapy seems to be based mainly on the methods of Wintz and Dessauer, and radium therapy on the procedures of Lahm. The American reader will find little new information as to either theory or practice. It is impossible, within a volume of this size, to present the subject completely so that a student of medicine, or a general practitioner, could read it and secure a working knowledge of how to deal with these conditions in practice, nor does it go into sufficient detail to be of any great value to the specialist.

Perhaps the most interesting chapter of all is the last, dealing with the question of disability. The author speaks of medical valuation commissions. Apparently there is a corps of doctors whose duty it is to estimate the disability of patients and to decide as to the amount of pension they should have, and the duration of the pension. These doctors, in contrast to those practicing in the hospitals, the physicians-clinicians, are called physicians-experts. It is frankly stated that medical examination, which he terms "valuation," should be placed under the control of the working masses, that they have constructed new foundations in the Soviet Union, and that the problem with these patients, as well as with all others, is to restore them to the capacity for effectual work and to insure that they are not a burden on those who are not sick and who can work. The author seems extremely proud of the social insurance laws of his country and mentions the yearly outlay in this direction as being enormously greater than that of any other country. This outlay seems small, indeed, when compared with the public and private charitable outlay in the United States of America at the present time.

The Biochemistry of the Lipids. By Henry B. Bull, Ph.D., Assistant Professor of Physiological Chemistry, Northwestern University Medical School, Chicago. Cloth. Price, $2.75. Pp. 169, with 63 illustrations. New York: John Wiley & Sons, Inc.; London: Chapman & Hall, Limited, 1937.

This is a revision and extension of the mimeographed edition that appeared under the same title in 1935. Numerous typographic errors and omissions have been eliminated. The material has been rearranged and extended so that the physiologic aspects are discussed in connection with the chemistry of each type of lipid. Much use is made of interpretations and presentation of data from x-ray analyses and of recent work on surface tension phenomena, various colloidal phenomena, iso-electric ranges and melting points. In this manner the author treats the lipins in the following order: fatty acids, soaps, alcohols, waxes and hydrocarbons, the sterols and related compounds, fats and oils, the phospholipids, cerebrosides, carbohydrate esters of the higher fatty acids, and emulsions. The work is well done and excellently presented for advanced students in biochemistry. The compilation of the recent observations on emulsions, buffer action, p_H, antioxidants and unsaturation is especially valuable. It seems rather odd to consider fatty acids first and then to delay the consideration of fats and oils until after the discussion of soaps, alcohols, waxes, hydrocarbons and sterols. Although the treatment of phospholipins is satisfactory in most respects, it is surprising to find that the rather excellent work of Klenk on the structure of sphingosin is not referred to. In fact, the author assigns two different formulas to sphingosin in connection with sphingomyelin and cerebrosides respectively.

Cytologie du liquide céphalo-rachidien normal chez l'homme: Monographie critique et pratique. Par H. Jessen. Paper. Price, 40 francs. Pp. 168, with illustrations. Paris: Masson & Cie, 1936.

In this well written monograph the author discusses the morphology, physiologic significance and methods of counting the cells in the cerebrospinal fluid. To the small and large mononuclear cells normally considered to be present in the spinal fluid Jessen adds polygonal cells, which exist in various numbers, often up to 5,026 per cubic millimeter. These cells were not previously identified because they were considered to be products of degeneration. The author believes that the cerebrospinal fluid is principally a secretion of the choroid plexus and that the cells are probably of histiogenic origin. The normal cell count is up to 5 per cubic millimeter but there is a constitutional variation in the number of cells found. Some people have consistently low cell counts (from 0.1 to 0.2 per cubic millimeter) while others may have from 4 to 6 cells per cubic millimeter. The literature is thoroughly covered and there is an extensive bibliography of more than 500 references which covers all languages.

Hautdesinfektionsprobleme. Von Jørgen Ernst. Paper. Price, 10 kroner. Pp. 174. Copenhagen: Levin & Munksgaard, 1937.

As the problems of disinfection of the skin are always interesting to surgeons and bacteriologists, this new book is timely. An expansion of the author's prize-winning dissertation in clinical medicine at the University of Copenhagen in 1935, the volume contains the reports of the results of 1,729 cultures from the skin of the hands and arms of interns, nursing sisters, physicians and patients before and after the application of various disinfectants in the obstetric service of the government's hospital at Copenhagen. In addition to a general introduction, it includes ninety-six tables (one for each person examined) and a bibliography. There are short chapters on the localization of bacteria in the skin and the bactericidal (self-sterilizing) power of the skin, methods for the collection of bacteria from the skin, the question of chemical neutralization of disinfectants, the methods and procedures used by the author, the results and conclusions, and a final summary.

To collect the bacteria from the skin, the author or subject wiped the surface of the hands or upper arm with a piece of moist sterile gauze. This was then shaken in 30 cc. of sterile salt solution. From this suspension 1 cc. was pipetted into melted nutrient agar, to which was added 0.4 per cent dextrose and 5 per cent horse blood. Plates were poured and incubated at 37 C. The colonies were counted and the organisms identified. The predominant bacteria in the cultures were staphylococci and Bacillus subtilis. Streptococci were rarely found in uninfected skin. Cultures were made daily or at short intervals, usually during a month's observation of each subject. By following this schedule the author could observe the effects of repeated washings and frequent applications of disinfecting solutions. Numbers of bacteria decreased considerably at first and occasionally increased toward the end of the month. In cases in which the bacterial flora increased there were usually fissures, superficial infections or scaliness of the skin. These small lesions were attributed to the injurious effects of disinfectants on the epidermis.

The chief disinfectants tested were 70 and 90 per cent alcohol, alcoholic soap solutions, a 0.1 per cent solution of mercury bichloride and an aqueous solution of iodine and potassium iodide in the proportion of 1:2:1,000. As most of the disinfectant could be removed from the hands by brief washing in running water, the author found that it was unnecessary for the bacteriologic purposes to neutralize the mercurial with ammonium sulfide and the iodine compound with sodium thiosulfate.

His results showed that mercury bichloride held first place among the substances tested by him as skin disinfectants. It could not be used constantly for a long time, however, because it produced erythemas and scaliness of the skin. The dilute iodine-potassium iodide solution was remarkably effective in reducing the number of bacteria in the superficial layer of the skin. Its only disadvantage was that it discolored the hands, turning them brown. The old dogma that 70 per cent alcohol is more bactericidal than 90 per cent alcohol was demolished by the author, as he found that the more concentrated was invariably more effective than the lower concentrated.

His quantitative method permitted him to observe that during a given period the bacterial flora of a person's hands change as the result of extrinsic factors and also through the operation of individual factors, some of which may be hormonal as well as infectious in nature. The extrinsic factors, producing "hetero-infection" of the hands, are such activities as playing tennis, gardening, and handling of contaminated material. The self-sterilizing power of the skin is attributed by the author to acids produced by glands and cells in the epidermis. It can be abolished by the application of alkali.

The care with which this study was made and the coherent results summarized in the tables produce a favorable impression. The author has not attempted to investigate a number of problems of disinfection of the skin and has little to contribute to the knowledge of the actual localization of bacteria in the skin and the relationship of indigenous cutaneous micro-

organisms to the occurrence of surgical wound infection. In the absence of studies on these subjects the book is not a general treatise. It is, however, a contribution of both theoretical and practical importance.

Bacteriology of Specific Communicable Diseases. Handbook of Public Health Bacteriology. General Information Regarding Epidemiology, Collection and Shipment of Specimens, and Bacteriologic, Serologic and Chemical Procedures, 1937. Edited by M. S. Marshall. Department of Public Health, City and County of San Francisco, California. J. C. Geiger, Director. Paper. Pp. 141. San Francisco: J. W. Stacey, Inc., 1937.

This manual could well serve as a standard for every progressive city or state health department. It is not only a most useful handbook of condensed general information on routine public health work but an epitome of public health laboratory methods. It coordinates the work of the epidemiologist, sanitary inspector, medical man and laboratory technician. A concise practical pocket manual such as this will undoubtedly do much for the successful prosecution of public health work. The information is precisely and clearly stated. The first twelve pages include a list of reportable diseases in California, a table of clinical specimens for laboratory examinations, and explicit instructions on the handling of specimens. The largest part of the manual is devoted to the bacteriology and serology of the communicable infections. A brief consideration of the bacteriology of shell-fish, milk, water and sewage follows. The final chapters discuss chemical procedures performed by the public health chemist. The appendix contains useful information on suggestions for diagnostic methods in addition to the usual tests performed, a compilation of the laboratory animals most useful for diagnostic inoculations, their care, methods for bleeding, sites for inoculation and other useful data. Drs. Geiger and Marshall and the competent committee who collaborated with them deserve commendation for the manner in which they were able to make available such essential public health information.

The International Medical Annual: A Year Book of Treatment and Practioner's Index. Edited by H. Letheby Tidy, M.A., M.D., F.R.C.P., and A. Rendle Short, M.D., B.S., B.Sc. Fifty-Fifth Year, 1937. Cloth. Price, $6. Pp. 605, with 167 illustrations. Baltimore: William Wood & Company, 1937.

In this book the more important medical contributions of the year 1936 are discussed in the form of short essays written by a rather large group of contributors. In the introduction the editors call attention to selected subjects of unusual interest, among which are the psychiatric examination of van der Lubbe of the Reichstag fire, the problem of "punch drunk" in professional pugilists, acute and chronic alcoholism, snakes and snake venom, cerebrospinal surgery and sulfanilamide. Naturally the space available for each subject is limited. Hence some subjects are little more than abstracts of current literature, while others form in themselves more or less complete discussions. The fine print makes continued reading hard on the eyes of most persons. A number of illustrations are included which might, perhaps, have been better selected in some instances. While not in any sense completely covering the contributions made in 1936, it does take up the most important advances. It is perhaps questionable whether books of this nature should be published annually or whether they and their possessors would not both gain by rather more extended treatment at less frequent intervals.

Man in a Chemical World: The Service of Chemical Industry. By A. Cressy Morrison. Cloth. Price, $3. Pp. 292, with illustrations. New York & London: Charles Scribner's Sons, 1937.

This is a common sense presentation of chemical factors underlying most articles and activities in our complex modern world. Dates, formulas and technical terms do not burden the reader, though essential terminology is not avoided. No extravagant claims are made for chemistry; failures and unexplored fields are described without allowing unique historical data to overshadow their present economic and social significance. The emphasis is on the modern world, so marvelous yet seemingly commonplace to those who do not understand the forces creating it. This book will undoubtedly be welcomed by the intelligent inquiring layman. The illustrations are excellent.

Surgical Pathology of the Thyroid Gland. By Arthur E. Hertzler, M.D., Surgeon to the Agnes Hertzler Memorial Hospital, Halstead, Kansas. Cloth. Price, $5. Pp. 298, with 238 illustrations. Philadelphia, Montreal & London: J. B. Lippincott Company, 1936.

In this monograph the author discusses the clinical and surgical aspects of various types of thyroid disturbances and has illustrated them by reproductions of photographs of patients and of the gross specimens. The various pathologic conditions of the thyroid gland are shown in photomicrographs. The reader, therefore, receives a complete picture of the clinical and pathologic status of the gland. Some pathologists might disagree with the author's classification of the pathologic changes in the thyroid, but the book nevertheless acts as a working basis for the surgeon, the pathologist and the internist.

Beri'uth Ha-zibur: Derakim uemtza's Shimur neged mahaloth mitdabbegoth. [Public Health: Ways and Means of Prevention of Infectious Diseases.] By A. J. Levy, M.D., Dr.P.H., Ph.D., Director of Health Education, Straus Health Center, Jerusalem, Palestine. Fabrikoid. Price, $1.50. Pp. 287, with 66 illustrations. Tel Aviv, Palestine: "Achiever," 1935.

Sanitariuth: Madrich lishmirat tzorke hammazon uehammaskeh ulehatkanat tena'e hayim nohim umavri'im babbaith ubahutz. [Sanitation: A Manual for the Care of Food and Drink and for Instituting Healthy Sanitary Conditions Within and Outside the Home.] By A. J. Levy, M.D., Dr. P.H., Ph.D., Director of Health Education, Straus Health Center, Jerusalem, Palestine. Fabrikoid. Price, $1.50. Pp. 303, with 76 illustrations. Tel Aviv, Palestine: "Achiever," 1936.

Ezrah Rishonah: Sefer shimmushi lekol adam. [First Aid: A Manual for Every Individual.] By A. J. Levy, M.D., Dr.P.H., Ph.D., Director of Health Education, Straus Health Center, Jerusalem, Palestine. With the collaboration of W. Nissel, M.D., and A. Simon, M.D. Fabrikoid. Price, $1.50. Pp. 354, with 114 illustrations. Jerusalem, Palestine: Reuben Mass, Publisher, 1936.

The author has undertaken the task of writing a series of textbooks on public health for the Palestinian population. He is well qualified to write these books, as he himself is a Palestinian who knows the habits of the people; he has in addition received his training both in medicine and in public health in American universities, and he is actively engaged in health center and health educational work. The first three volumes have already appeared, one on general hygiene, one on sanitation and a third one on first aid. All three books are written in a popular style, understandable by any one who knows the Hebrew language. They are illustrated profusely and contain some historical references. The books embody the latest health information and have already proved their great value to the Hebrew reading public.

Die Drüsen mit innerer Sekretion: Ihre physiologische und therapeutische Bedeutung. Mit einem Vorwort von Dozent Dr. Wilhelm Raab. Autorisierte Übersetzung und Erweiterung des Werkes "Glandular Physiology and Therapy: A Symposium Prepared Under the Auspices of the Council on Pharmacy and Chemistry of the American Medical Association," von Dr. med. Adolf Nichtenhauser und Dr. med. Kurt Stern. Cloth. Pp. 423, with illustrations. Vienna & Leipzig: Aesculap-Verlag, 1937.

This translation of Glandular Physiology and Therapy is identical with the American edition except for the section by Zondek on the chromatophorotropic principle of the pituitary, which has been revised and considerably enlarged. The translators, Drs. Adolf Nichtenhauser and Kurt Stern of Vienna, and the publishers are to be congratulated on the faithful rendition into German. The number of pages has been reduced one fifth by use of a larger page. Typography, illustrations and binding are all excellent. This edition of the symposium by renowned endocrinologists, which has already received wide acclaim in the English version, should be of great value to German-speaking physicians.

Diseases of the Nose, Throat and Ear: A Handbook for Students and Practitioners. By I. Simson Hall, M.B., Ch.B., F.R.C.P.E., Surgeon to the Royal Infirmary, Edinburgh (Department for Diseases of Nose, Throat and Ear). Cloth. Price, $4. Pp. 423, with 56 illustrations. Baltimore: William Wood & Company, 1937.

This is a handbook for students and general practitioners. Precisely and clearly it discusses the chief diseases of the ear, nose and throat. There is some discussion of operative procedures, although not too much nor in too great detail, which is proper for a book of this character. The illustrations are clear, and many of them seem to be new.

Contributions to the Microscopic Anatomy of the Pancreas. By Paul Langerhans [Berlin, 1869]. Reprint of the German Original with an English Translation and an Introductory Essay. By H. Morrison, M.D. Boards. Price, $1. Pp. 39, with 3 illustrations. Baltimore: Johns Hopkins Press, 1937.

Dr. Morrison has rendered a great service to all interested in the history of medicine, and particularly to those who are concerned with instruction in the history of diabetes mellitus, by reprinting the German original of "Contributions to the Microscopic Anatomy of the Pancreas," by Paul Langerhans, and adding an excellent English translation of the article. In the well written and interesting introductory essay, a short account of the personal and scientific history of the German investigator is given. Langerhans, it is pointed out, was the son of a physician and began his important researches while still a student. Indeed, it was this fact which focused the author's attention on Langerhans. It is not appreciated by many students of the history of diabetes that Langerhans, in a rather short research career, was able to make several other significant contributions in addition to the discovery of the cells that were named "ilots de Langerhans" by the French histologist Laguesse. There is no doubt, however, as Dr. Morrison says, that Langerhans will be remembered chiefly because he detected that the structures in the pancreas that now bear his name possessed characteristics distinguishing them from the cells of the acinous tissue.

Bureau of Legal Medicine and Legislation

MEDICOLEGAL ABSTRACTS

Medical Practice Acts: Revocation of Physician's License for Failure to Report Venereal Disease.—The physician-appellant was convicted of violating a Nevada statute requiring physicians having knowledge that a prostitute is infected with a venereal disease to report that fact immediately to the chief of police. Thereafter proceedings were instituted before the state board of medical examiners to revoke the physician's license under a complaint charging him with (1) wilful disobedience of the law, and (2) conviction of an offense involving moral turpitude. The license was revoked, the second judicial district court, Washoe County, upheld the revocation, and the physician appealed to the Supreme Court of Nevada.

The physician contended that the word "law" as used in the section of the medical practice act authorizing the revocation of a license for "wilful disobedience of the law" was limited in its meaning to laws included in the act creating the state board of health. With this contention, the Supreme Court disagreed. Wilful disobedience of a law requiring immediate report by a physician of a prostitute afflicted with a contagious or infectious venereal disease, said the court, comes within the meaning of "wilful disobedience of the law" as those words are used in the medical practice act. The word "law" in this connection does not refer exclusively to the act creating the state board of health. The physician further contended that the offense of which he was convicted was not one involving moral turpitude. Whether the misdemeanor was an offense involving moral turpitude, the court said, depends on the circumstances under which it was committed. It is easily conceivable, the court pointed out, that a physician of the most ethical type, knowing a prostitute to be afflicted with such a disease, and being about to report the case immediately to the police authorities, might have his attention distracted before actually doing so, by reason of some emergency, and then forget the matter for several days. The fact that he unintentionally overlooked reporting the case to the police authorities would not be a defense to a prosecution under the law requiring him to report, because the mere failure to notify the police authorities constitutes the offense, yet no moral turpitude would be involved in such a case. After reviewing the record, the court was of the opinion that, while there was substantial evidence to support the findings of the board of medical examiners, there was some doubt as to whether the physician's failure immediately to report the prostitute to the police authorities was an intentional violation of the law and as to whether that failure involved moral turpitude. In *State Board of Dental Examiners* v. *Savelle*, 90 Colo. 177, 8 P. (2d) 693, 82 A. L. R. 1176, it was held that the power to revoke permanently includes the power to suspend. Under all the circumstances of the present case, the court thought that the revocation of the physician's license should have been temporary rather than permanent. Feeling that the demands of justice had already been met in this case, the physician's license having been revoked Feb. 3, 1936, the court ordered that the revocation of the license should terminate on the filing of the opinion by the court and that the physician be permitted to resume practice from and after Feb. 5, 1937.—*In re Reno (Nev.), 64 P. (2d) 1036.*

Workmen's Compensation Acts: Blindness in Relation to Trauma and Syphilis; Medical Books in Evidence.—The claimant, while at work cleaning the inside of a metal tank with an electric brush, complained to a fellow worker that something had got into his left eye. Shortly afterward the claimant reported to the plant surgeon, who found some pieces of foreign matter in the eye, which he apparently removed. The claimant, however, continued to insist that there was still something in his eye and during the next several months he received treatment from various physicians but obtained no relief. Eventually, he became totally blind in his left eye. Vision in his right was reduced to less than one tenth of normal vision and the condition could not be corrected by lenses. During the course of treatment for his eye condition it was discovered that the claimant had syphilis and he underwent treatment for that disease. In a proceeding under the workmen's compensation act of Connecticut, the commissioner awarded the claimant compensation and the employer appealed to the superior court, which remanded the case to the commissioner for the taking of further evidence. The claimant thereupon appealed to the Supreme Court of Errors of Connecticut.

The commissioner concluded that an injury which the claimant received to his left eye precipitated an optic neuritis in that eye and that atrophy of the optic nerve developed, resulting in total blindness in that eye; that sympathetically the right eye was affected by the injury to the left, so that the net results of the injury was that the claimant was industrially blind in both eyes. The employer contended that the claimant's condition was not due to trauma but to syphilis. Whether or not the claimant's blindness was due to the trauma or to syphilis, said the Supreme Court of Errors, was a medical question on which the witnesses called by the two parties were diametrically in opposition. Two physicians testifying for the claimant expressed the opinion that loss of sight which the claimant was suffering was due to the injury received while working in the tank; the medical testimony for the company was that the condition was wholly due to syphilis or to the treatment therefor. In the conflict of testimony as to the cause of the claimant's disability, the court said, it was the province of the commissioner to determine the matter and with his conclusion the court felt disinclined to interfere.

In the course of the hearing before the commissioner a medical expert on behalf of the claimant was asked how he accounted for the 90 per cent loss of vision in the claimant's right eye by reason of the injury to the left eye. The witness stated that he could not answer the question from personal experience but read to the commissioner a statement concerning the matter from a medical book. The employer contended that it was error for the commissioner to receive the statement in evidence. This contention, the court said, overlooks the nature of the hearing before the commissioner. The law provides that the commissioner shall not be bound by the ordinary common law or statutory rules of evidence or procedure and is therefore permitted great latitude in the admission of evidence. The employer further contended that an award of compensation to the claimant was not permissible because the workmen's compensation act provides that in case of an accidental injury a disability or death due to the acceleration or aggravation of syphilis does not constitute a compensable injury. Under this provision, the court said, where the effect of the injury is to accelerate or aggravate the constitutional disease, no recovery can be had. The provision, however, was

not intended to prevent compensation in all cases. Compensation is not made to depend on the condition of health of the employee or on his freedom from liability to injury through a constitutional disease or latent tendency. If the injury is the cause of the disability, it is compensable even though such an injury might not have caused the disability if occurring to a healthy employee or even an average employee. In the present case the ultimate conclusion of the commissioner was that the injury which the claimant received because of his condition affected the optic nerve in such a manner as to result in loss of sight of both eyes. As the record supported this conclusion, the court said, the disability was compensable.

The cause was remanded to the superior court, with directions to enter judgment for the claimant.—*Nicotra v. Bigelow, Sanford Carpet Co. (Conn.), 189 A. 603.*

Workmen's Compensation Acts: Disfigurement Not a Compensable Disability.—The claimant's face was badly scarred by acid, resulting in considerable disfigurement. He was otherwise injured and instituted proceedings under the workmen's compensation act of New Jersey. The question as to whether or not disfigurement constituted a compensable disability eventually was presented to the supreme court of New Jersey.

A reading of the several sections of the workmen's compensation act, said the court, clearly indicates a legislative purpose to provide compensation for disability which disqualifies an employee from doing work in whole or in part. In *De Zeng Standard Co.* v. *Pressey*, 86 N. J. Law 469, 92 A. 278 (affirmed in 96 A. 1102) the court said:

> The disability intended thereby (the act) is a disability due to loss of a member, or part of a member, or of a function, rather than to mere loss of earning power.

In that case it was claimed that if there was injury but no loss of actual wages there was no loss of earning power, and that this precluded an award. The court, however, refused to take this view, declaring that it was disability alone that counted, whether loss of physical parts or loss of function. In the present case the court said that the disfigurement and scars on the claimant's face may well deter employment and thereby lessen his earning power, but they in no wise impair his ability to work. If disfigurement, standing alone, is to be made the basis of compensation, it must be done by the legislature and not by an extension of the act by judicial construction. If and when such legislation shall be deemed desirable, the court said, the legislature can determine what types of disfigurement, marks and scars, and on what portion of the face, head or body, shall be considered, and within what limits and bounds awards of compensation shall be made.—*Everhardt v. Newark Cleaning & Dyeing Co., (N. J.), 189 A. 926.*

Workmen's Compensation Acts: Student Nurse an Employee Within Meaning of Act.—The claimant, a student nurse at the defendant hospital, apparently sustained an injury, the nature of which does not appear in the record. In affirming an award of the industrial accident board granting her compensation, the supreme court of New York, appellate division, third department, held that, while the claimant's remuneration consisted solely of room, maintenance, education, and training, she was an employee of the hospital within the meaning of the workmen's compensation act.—*Nelson v. St. Francis Hospital (N. Y.), 292 N. Y. S. 552.*

Medical Practice Act: Enforcement by Quo Warranto; Burden of Proof.—The state of Alabama, on relation of the solicitor of the ninth judicial circuit, instituted proceedings in the nature of quo warranto against the appellant, charging him with intruding himself into the profession of treating or offering to treat diseases of human beings. The trial court gave judgment against the appellant, who thereupon appealed to the court of appeals of Alabama.

The burden rested on the state, said the court, to offer evidence to sustain the material allegations of the complaint and until such evidence was produced the appellant was under no duty to undertake to disprove the charges against him. Only two witnesses were examined by the state. The appellant offered no testimony. A practicing physician testified that he was called to attend a patient and saw the appellant there and that he, the appellant, rubbed the patient's arms and legs. The other witness testified that he told the appellant that he had a pain in his leg and that the appellant rubbed it for him. In the opinion of the appellate court, this evidence did not entitle the state to a verdict, for there was a total lack of any proof tending to show that the appellant committed any of the acts charged in the complaint. The evidence in its strongest phase against the appellant, the court said, merely showed that on the occasions mentioned he merely rubbed the extremities of the two persons who were suffering from pain. In *Thompson* v. *State*, 228 Ala. 231, 153 So. 470, the Supreme Court of Alabama said:

> The treatment, as set out in the opinion of the Court of Appeals, was "massages" by the defendant of two persons, one of whom had a pain in her shoulder and the other a pain in the neck, and, this being so, the state failed to show that the defendant treated them for a disease.
>
> We find no discussion of the word "disease" as used in a criminal statute, but many of the leading courts, in defining the word "disease," hold that it means more than a mere temporary pain or disorder. . . .

Relying on the foregoing decision of the Supreme Court of Alabama, the court in the present case held that the verdict and the judgment based on it were impregnated with error and could not be sustained. The appellant was therefore discharged from further custody.—*Ferguson v. State ex rel. Bailey (Ala.), 172 So. 350.*

Society Proceedings

COMING MEETINGS

Academy of Physical Medicine, Philadelphia, Oct. 19-21. Dr. Herman A. Osgood, 144 Commonwealth Ave., Boston, Secretary.

American Academy of Ophthalmology and Otolaryngology, Chicago, Oct. 10-15. Dr. W. P. Wherry, 107 South Seventeenth St., Omaha, Executive Secretary.

American Association of Obstetricians, Gynecologists and Abdominal Surgeons, Hot Springs, Va., Sept. 20-22. Dr. James R. Bloss, 418 Eleventh St., Huntington, W. Va., Secretary.

American Association of Railway Surgeons, Chicago, Sept. 20-22. Dr. Daniel B. Moss, 547 W. Jackson Blvd., Chicago, Secretary.

American Clinical and Climatological Association, Baltimore, Oct. 11-13. Dr. Francis M. Rackemann, 263 Beacon St., Boston, Secretary.

American College of Surgeons, Chicago, Oct. 25-29. Dr. George W. Crile, 40 East Erie Street, Chicago, Chairman, Board of Regents.

American Congress of Physical Therapy, Cincinnati, Sept. 20-24. Dr. Richard Kovacs, 1100 Park Ave., New York, Secretary.

American Hospital Association, Atlantic City, N. J., Sept. 13-18. Dr. Bert W. Caldwell, 18 East Division St., Chicago, Executive Secretary.

American Public Health Association, New York, Oct. 5-8. Dr. R. M. Atwater, 50 West 50th St., New York, Executive Secretary.

American Roentgen Ray Society, Chicago, Sept. 13-17. Dr. Eugene P. Pendergrass, 3400 Spruce St., Philadelphia, Secretary.

Association of American Medical Colleges, San Francisco, Oct. 24-26. Dr. Fred C. Zapffe, 5 South Wabash Ave., Chicago, Secretary.

Association of Military Surgeons of the United States, Los Angeles, Oct. 14-16. Dr. H. L. Gilchrist, Army Medical Museum, Washington, D. C., Secretary.

Central Association of Obstetricians and Gynecologists, Dallas, Texas, Oct. 14-16. Dr. Ralph A. Reis, 104 South Michigan Blvd., Chicago, Secretary.

Clinical Orthopaedic Society, Chicago, Oct. 14-16. Dr. H. Earle Conwell, 215 Medical Arts Bldg., Birmingham, Ala., Secretary.

Colorado State Medical Society, Colorado Springs, Sept. 22-25. Mr. Harvey T. Sethman, 537 Republic Building, Denver, Executive Secretary.

Delaware, Medical Society of, Wilmington, Oct. 12-13. Dr. W. H. Speer, 917 Washington St., Wilmington, Secretary.

Indiana State Medical Association, French Lick, Oct. 4-6. Mr. T. A. Hendricks, 23 East Ohio St., Indianapolis, Executive Secretary.

Inter-State Postgraduate Medical Association of North America, St. Louis, Oct. 18-22. Dr. W. B. Peck, 27 E. Stephenson St., Freeport, Ill., Managing Director.

Kentucky State Medical Association, Richmond, Sept. 13-16. Dr. A. T. McCormack, 532 West Main St., Louisville, Secretary.

Michigan State Medical Society, Grand Rapids, Sept. 27-30. Dr. L. Fernald Foster, 311 Center Ave., Bay City, Secretary.

Mississippi Valley Medical Society, Quincy, Ill., Sept. 29-Oct. 1. Dr. Harold Swanberg, 510 Maine St., Quincy, Ill., Secretary.

Nevada State Medical Association, Ely, Sept. 24-25. Dr. Horace J. Brown, 120 N. Virginia St., Reno, Secretary.

Omaha Mid-West Clinical Society, Omaha, Oct. 17-22. Dr. J. D. McCarthy, 107 South Seventeenth Street, Omaha, Secretary.

Oregon State Medical Society, Salem, Oct. 21-23. Dr. Morris L. Bridgeman, 1020 S. W. Taylor St., Portland, Secretary.

Pennsylvania, Medical Society of the State of, Philadelphia, Oct. 4-7. Dr. Walter F. Donaldson, 500 Penn Avenue, Pittsburgh, Secretary.

Radiological Society of North America, Chicago, Sept. 13-17. Dr. Donald S. Childs, 607 Medical Arts Building, Syracuse, N. Y., Secretary.

Vermont State Medical Society, St. Johnsbury, Oct. 14-15. Dr. A. B. Soule Jr., Mary Fletcher Hospital, Burlington, Secretary.

Virginia, Medical Society of, Roanoke, Oct. 12-14. Miss A. V. Edwards, 1200 East Clay St., Richmond, Secretary.

Wisconsin, State Medical Society of, Milwaukee, Sept. 14-17. Mr. J. G. Crownhart, 119 East Washington Ave., Madison, Secretary.

Current Medical Literature

AMERICAN

The Association library lends periodicals to Fellows of the Association and to individual subscribers in continental United States and Canada for a period of three days. Periodicals are available from 1927 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 12 cents if two periodicals are requested). Periodicals published by the American Medical Association are not available for lending but may be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

American Journal of Cancer, New York

30: 435-666 (July) 1937

Cancer and Human Races. C. Bonne, Batavia, Java.—p. 435.
Malignant Rhabdomyoblastomas of Skeletal Musculature. A. I. Rakov, Leningrad, U. S. S. R.—p. 455.
Recovery in Locke's Solution of Retarding Agent from Immune Rats. W. H. Woglom, New York.—p. 477.
Metastases in Squamous-Cell Carcinoma. E. M. Burke, Buffalo.—p. 493.
Nuclear Abnormalities Resulting from Inhibition of Mitosis by Colchicine and Other Substances. A. M. Brues and Elizabeth B. Jackson, Boston.—p. 504.
Some Further Physiologic Effects of Cell Division Stimulants and Inhibitors. G. L. Rohdenburg and S. M. Nagy, New York.—p. 512.
*Sex Hormones and Cancer: Some Effects of Interplay of Sex Hormones on Incidence of Mammary Cancer in Mice. W. S. Murray, Bar Harbor, Maine.—p. 517.
Age Distribution of 1,250 Spontaneous Carcinomas of Mammary Gland in Female Mice of the A Strain. L. C. Strong, New Haven, Conn.—p. 527.
Mammary Tumors in Mice in Relation to Nursing. J. J. Bittner, Bar Harbor, Maine.—p. 530.
Value of "Functional Test" in Selecting Material for Genetic Study of Mammary Tumors in Mice and Rats. H. J. Bagg and J. Jacksen, New York.—p. 539.
Action of Ferricyanide on Tumor Cells. B. Mendel, Toronto.—p. 549.
Effect of Fatty Acid Structure on Inhibition of Growth of Chicken Sarcoma. O. M. Helmer and G. H. A. Clowes, Indianapolis.—p. 553.
Compounds Synthesized from Proteins and Carcinogenic Hydrocarbons. H. J. Creech and W. R. Franks, Toronto.—p. 555.
*Menopausal Age in Women with Cancer of the Breast. I. Y. Olch, Los Angeles.—p. 563.
Primary Lymphosarcoma of the Ovary: Report of Case. H. A. Durfee, B. F. Clark and J. H. Peers, Burlington, Vt.—p. 567.
Xeroderma Pigmentosum with Carcinoma of Lower Lip in Two Brothers Aged 16 and 13 Years. E. T. Bell, Minneapolis, and T. P. Rothnem, Fargo, N. D.—p. 574.
Observations on Use of Lead Diaphragm to Collimate an X-Ray Beam for Treatment Purposes. M. C. Reinhard and C. F. Candee, Buffalo.—p. 577.

Sex Hormones and Cancer.—From the data that Murray obtained from a study of 189 parabiotic pairs of mice, it seems that the introduction of the male hormones into the blood stream of the female causes an upset in her sexual cycle. The ovaries are stimulated to a precocious and prolonged production of follicles which degenerate within the gland, with the result that no luteal tissue is formed. Since none of these females developed mammary tumors, it seems reasonable to assume that the proliferation and change to malignancy in the mammary glands may be due, in some measure, to the luteal fraction of the ovarian hormone. On this hypothesis, the observed difference in cancer incidence between the breeding and the virgin females may be explained as being due to the prolonged luteal phase of pregnancy. It is also supported by the observation of Lacassagne, who found a correlation between the rapidity of normal estrous cycles and the incidence of cancer in mice.

Menopausal Age in Women with Cancer of the Breast.—Olch collected 342 instances of cancer of the breast in women first coming to medical attention when they were more than 50 years old. These cases were unselected except that women who had had previous pelvic operations were excluded. There were 54.7 per cent who were still menstruating at the time of observation or who had passed through the menopause after the age of 50. That is, almost five times as many women in this group had a delayed menopausal age as compared to a series of normal women. This difference is too striking to be disregarded and, coupled with past clinical and the more recent experimental knowledge, forces the author to the conclusion that delayed or prolonged menstruation is a factor to be considered in the etiology of this disease in older women.

American J. Digest. Dis. & Nutrition, Fort Wayne, Ind.

4: 281-354 (July) 1937

Treatment of Amebic Colitis with Diiodohydroxylquinoline (Diodoquin). D. N. Silverman, New Orleans.—p. 281.
Complement Fixation Test for Amebiasis with Increased Antibody Content. E. Weiss and L. Arnold, Chicago.—p. 282.
Digestive Qualifications of Man. E. G. Wakefield and C. W. Mayo, Rochester, Minn.—p. 287.
Causes of Mortality Among Diabetics. H. J. John, Cleveland.—p. 291.
Study of Gastric Emptying with Pylorus Open. J. O. Crider and J. E. Thomas, Philadelphia.—p. 295.
Duodenal Intussusception. W. W. Boardman and E. Leivers, San Francisco.—p. 300.
*Study of Peptic Activity by Means of Double Histamine Test. A. B. Rivers and Frances R. Vanzant, Rochester, Minn.—p. 304.
Effect of Oral Administration of Bile Salts on Composition of Human Fistula Bile. K. G. Kohlstaedt and O. M. Helmer, Indianapolis.—p. 306.
Gastroscopy as Diagnostic Procedure. E. B. Freeman, Baltimore.—p. 312.
Galactose Tolerance and Urobilinogen Tests in Differential Diagnosis of Painless Jaundice. F. W. White, Boston.—p. 315.
Production of Peptic Ulcers in Rats and Mice by Diets Deficient in Protein. F. Hoelzel and Esther Da Costa, Chicago.—p. 325.
Pathogenesis of Senile Osteoporosis: Relations to Morbus Cushing and Basophilia of Anterior Pituitary. E. Lyon, Jerusalem, Palestine.—p. 332.

Study of Peptic Activity by Means of Double Histamine Test.—Rivers and Vanzant performed the double histamine test in sixty-six cases. A large number of the patients had peptic ulcer. From the results obtained, it is evident that the argument that the secretion of pepsin is not stimulated by histamine but that preformed pepsin is merely washed out breaks down because the shortness of the interval (one hour) between the two injections precludes the possibility of pepsin accumulating in the tubules in large quantities. The curves show that the secretion of pepsin reaches its height in the first twenty minutes after injection and then falls rather abruptly to a low level. Following the second injection of histamine, an almost identical curve was observed except that slightly higher values for pepsin were obtained in the first ten minutes after the first injection than were obtained in the corresponding period after the second injection. This difference may well be due to a washing out of preformed pepsin by the first injection.

American Journal of Diseases of Children, Chicago

54: 209-458 (Aug.) 1937

Sternal Marrow Puncture in Infants and in Children. K. Kato, Chicago.—p. 209.
Bacteriologic Studies of an Epidemic of Pleurodynia. M. L. Cooper and Helen M. Keller, Cincinnati.—p. 231.
The Moro Reflex. Myrtle B. McGraw, New York.—p. 240.
Utilization of Organic and Inorganic Iron by Normal Infant. Helen Oldham, F. W. Schultz and Minerva Morse, Chicago.—p. 252.
Four Lead Electrocardiogram of Children. P. F. Dwan and M. J. Shapiro, Minneapolis.—p. 265.
Human Convalescent Serum in Prevention and Modification of Measles. C. M. Hyland and Lucile Russell Anderson, Los Angeles.—p. 277.
*Human Passive Transfer Antibody: I. Titration by Neutralization. V. W. Lippard and W. M. Schmidt, New York.—p. 288.
Studies with BCG: IV. Focal and General Tissue Response and Humoral Response; Intradermal Route. S. R. Rosenthal, Chicago.—p. 296.
Dietetic Treatment of Eczema in Infants and in Children. H. Finkelstein, Berlin, Germany.—p. 344.

Passive Transfer Antibody.—For the technic developed by Lippard and Schmidt for titration of the passive transfer antibody, blood is obtained from patients with allergic disorders; the serum is separated and stored in sterile rubber-capped vials. Concentrated antigen solutions of known nitrogen concentration, prepared within six months, are freshly diluted when mixtures are to be made. The stock solution is diluted so that 1 cc. contains 0.15 mg. of total nitrogen. Progressive dilutions of the stock solution are prepared (1:2, 1:5, 1:10, 1:20, 1:50, 1:100 and 1:1,000). The diluent is physiologic solution of sodium chloride containing merthiolate in a concentration of 1:2,000. For the preparation of antigen-antibody mixtures 0.4 cc. of undiluted serum is placed in each of seven vials; 0.1 cc. of one of the antigen dilutions previously mentioned is added to each vial. The final dilution of merthiolate in the mixtures is 1:10,000. One-tenth cubic centimeter of each mixture is injected intracutaneously at intervals of approximately 5 cm. into the arms of three recipients who are in good health and have no history of allergic disorders. When the antigen concerned is a food, it is eliminated from the recipients' diets until the subsequent injection. Secondary injec-

tions of antigen are administered from one to three days after the injection of the antigen-antibody mixtures. As a preliminary test, to exclude the possibility of natural sensitivity, recipients are tested endermally with 0.02 cc. of a strong concentration of the antigen (containing 0.3 mg. of nitrogen per cubic centimeter). If no significant local reaction appears, the same solution is injected intramuscularly into the external aspect of the thigh. The sites previously sensitized with serum-antigen mixtures are then observed for wheals, which may appear from twenty minutes to two hours later. The dimensions of the reactions are recorded. The titer of the serum is based on the antigen concentration of the mixture at the site above the first wheal. The technic has been found useful in the study of fluctuations of the passive transfer antibody content of human serums in terms of antigen equivalence. Experiments concerning several factors involved in the technic, such as the standardization of intramuscular injections, the stability of antigen-antibody mixtures and the specificity of neutralization, are described. The method has demonstrated variations in the titer of the passive transfer antibody in serums of persons hypersensitive to a variety of antigens.

American Journal of Medical Sciences, Philadelphia

194: 149-292 (Aug.) 1937

The Effects of Protamine Insulin and Related Compounds in Normal and Depancreatized Dogs. R. B. Kerr and C. H. Best, Toronto.—p. 149.

Investigation on Volunteers Infected with the Influenza Virus. A. A. Smorodintseff, M. D. Tushinsky, A. I. Drobyshevskaya, A. A. Korovin and A. I. Osetroff, Leningrad, U. S. S. R.—p. 159.

*Value of Fever Therapy in the Arthritides. E. E. Simmons, Omaha.—p. 170.

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The Rôle of Distention in the Genesis of Acute Inflammation of Hollow Viscera. W. F. Bowers, Minneapolis.—p. 205.

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Tuberculin Skin Sensitivity in Chronic Tuberculosis in the Course of Hospital Treatment: Measurement by Standard Tuberculin (Purified Protein Derivative). Marian G. Hayes, J. R. Pastor, L. R. Gaetan, R. A. S. Cory and E. R. Long, Philadelphia.—p. 220.

Considerations and Experiments on the Hypersensitive Nature of Aminopyrine Agranulocytosis. C. Holten, Aalborg, Denmark.—p. 229.

The General Hospital: Its Psychiatric Needs and the Opportunities It Offers for Psychiatric Teaching. E. G. Billings, Denver.—p. 234.

Frequent Psychiatric Complications in General Practice. F. G. Ebaugh, Denver.—p. 243.

*The Importance of Soft Tissue Lesions in Arthritis. D. H. Kling, Los Angeles.—p. 257.

The Formol-Gel Reaction: Convenient Preliminary Test for Hyperglobulinemia. C. R. Wise and A. B. Gutman, New York.—p. 263.

Value of Fever Therapy in Arthritides.—Simmons points out that, of nine cases of acute rheumatic fever with active endocarditis, six became inactive in an average of twenty-four days, following an average of five fever treatments. Three cases of acute rheumatic fever with active endocarditis and complicated by chorea became inactive in an average of forty-six days, following an average of nine fever treatments. This is a marked improvement over any other type of therapy and justifies further investigation. Of twenty-three cases of gonorrheal arthritis, 82 per cent were cured or markedly improved after an average of 26.4 hours of fever maintained between 106 and 107 F. A minimum of at least twenty-five hours of fever at this elevation is necessary before this therapy is concluded to be a failure. Artificial fever therapy is a valuable adjuvant, along with dietary, supportive and orthopedic measures, in the treatment of atrophic arthritis. This combination of treatment was of benefit in 78 per cent of the thirty-six patients treated. Hypertrophic arthritis is benefited by artificial fever therapy only in those cases in which there is a superimposed traumatic and infectious element. In any type of arthritis, with or without an infectious element, heat is a justifiable therapeutic measure. Other means of producing febrile reactions are not so efficiently controlled nor so safe as mechanically induced fever therapy. The beneficial effects of fever therapy in the arthritides, with the possible exception of gonorrheal arthritis, are in all probability not solely bactericidal but rather the result of the beneficial effects of vasodilatation and increased immunologic response.

Importance of Soft Tissue Lesions in Arthritis.—Kling believes that the usual cursory examination of the joints and periarticular structures in arthritis has resulted in an overvaluation of x-ray signs. Routine roentgenograms, however, give details only of bone structure. Shadows of the soft tissues are, at best, poorly registered. Therefore they are usually disregarded and the diagnosis is based solely on the changes in bony articular structures. The danger of such misinterpretation is realized if one considers that the finding of spurs is accepted as evidence for the presence of osteo-arthritis (hypertrophic arthritis). Degeneration of cartilage and osteophytes at the articular surfaces are present in more than 80 per cent of persons more than 40 years of age. Clinical symptoms, however, develop in not more than from 5 to 10 per cent. Indeed, spurs are seen in most roentgenograms of persons past middle age who have never experienced trouble in their joints. It will be a great stimulus to develop advanced methods for registering the soft tissues. A beginning was made in this direction by the inflation of air or other gases or by the injection of contrast mediums into the joint cavity. These methods, under favorable circumstances, show changes in the soft tissues, such as tears in the cartilages or hypertrophy of the synovial membrane. Unlike changes in bone, lesions of the soft tissue are almost invariably associated with clinical symptoms. The greatest effort should be expended to advance the knowledge of the structure and behavior of the soft tissues in health and disease.

American Journal of Ophthalmology, St. Louis

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Melanoblastoma of Lacrimal Caruncle: Report of Case and Review of Literature. J. O. Wetzel, Lansing, Mich.—p. 675.

Chiasmal Syndrome and Retrobulbar Neuritis in Pregnancy. A. Hagedoorn, Amsterdam, Netherlands.—p. 690.

Dimethyl Sulfate Poisoning in Relation to Ophthalmology. S. de Grósz, Budapest, Hungary.—p. 700.

*Retrobulbar Neuritis in Pellagra. M. Fine and G. S. Lachman, San Francisco.—p. 708.

Surgery of Leprous Eye. F. J. Pinkerton, Honolulu, Hawaii.—p. 715.

The Souter Tonometer. F. H. Verhoeff, Boston.—p. 720.

Diastolic Pressure and Glaucoma: Note. I. Hartshorne, New York.—p. 724.

Lundsgaard's Modification of Holth's Iridencleisis. K. W. Constantine, Birmingham, Ala.—p. 728.

Gonioscopy of Surgical Colobomas of Iris. M. P. Solanes, Mexico, D. F.—p. 731.

Retrobulbar Neuritis in Pellagra.—Fine and Lachman have observed three patients suffering from pellagra who had impaired vision due to retrobulbar neuritis. In the first of these the retrobulbar neuritis was diagnosed several weeks before signs of pellagra appeared. In each case the presence of skin lesions led to the correct diagnosis. With the present state of knowledge of pellagra, one can only speculate about the relationship of the pellagrous syndrome to the visual disturbances. The etiology of the disease is still unsettled. Since vitamin B_2, or G, was separated from the antineuritic factor B_1, it has become more and more apparent that even G is a complex of various factors the number and nature of which are not at all understood. The history in these cases is usually that of chronic alcoholism over many years with the appearance of pellagra-like symptoms after a spree lasting several weeks. It has been suggested that the important factor in these cases is undernutrition and damage to the alimentary tract from the alcohol, interfering with absorption. In considering the ocular disturbance associated with pellagra, the problem of the rôle of alcohol becomes more significant in view of the relative frequency of so-called tobacco-alcohol amblyopia. The association of tobacco with ethyl alcohol in producing injury to the visual fibers is a constant one. There has been an increasing tendency to regard alcohol as an exciting factor in tobacco amblyopia. Recently the rôle of chronic alcoholism in peripheral neuritis has been questioned. It does not seem improbable that a relationship such as exists between vitamin B_1 deficiency and the peripheral nervous system may also exist between vitamin B_2 (G) deficiency and the central nervous system, of which the optic nerve is a part, and that in each case the alcoholism plays only an indirect part. Such a quantitative relationship would offer an explanation of the fact that some alcoholic

addicts never suffer from amblyopia, while other relatively moderate drinkers suffer serious insult to the visual fibers. The question arises whether many cases of "alcohol and tobacco" amblyopia are not complicated by a deficiency of vitamin G.

American Journal of Orthopsychiatry, Menasha, Wis.

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Use of Plastic Material as Psychiatric Approach to Emotional Problems in Children. Lauretta Bender and A. G. Woltmann, New York.—p. 283.
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The Attitude Toward Food. Agnes Conrad, New York.—p. 360.
Some Imaginary Companions of Older Subjects. P. L. Harriman, Lewisburg, Pa.—p. 368.
Nicknames of Adolescent Boys. S. Habbe, New York.—p. 371.
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*Seasonal Variations in Number of Platelets in Arterial, Venous and Cutaneous Blood of Man. L. M. Tocantins, Philadelphia.—p. 439.
Metabolic Changes in Liver, Kidney and Anterior Hypophysis of Pregnant, Parturient and Lactating Rats. Dorothy H. Andersen, Margaret R. Prest and J. Victor, New York.—p. 445.
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Proprioceptive Respiratory Reflexes of Vagus Nerve. E. H. Steffensen, J. M. Brookhart and R. Gesell, Ann Arbor, Mich.—p. 517.
Rôle of Adrenal Gland in Blood Sugar Recovery After Insulin Hypoglycemia. T. F. Zucker and B. N. Berg, New York.—p. 539.
Phasic Blood Flow and Its Determinants in Right Coronary Artery. D. E. Gregg, Cleveland.—p. 580.
Ptyalin Content of Human Saliva in Old Age. J. Meyer, J. C. Golden, N. Steiner and H. Necheles, Chicago.—p. 600.
Liberation of Adrenin and Sympathin Induced by Stimulation of Hypothalamus. H. W. Magoun, S. W. Ranson and A. Hetherington, Chicago.—p. 615.
Relation of Cyclic Changes in Human Vaginal Smears to Body Temperatures and Basal Metabolic Rates. B. B. Rubenstein, Cleveland.—p. 635.
Influence of Strenuous Muscular Exercise on Renal Excretion. E. R. Norris and R. S. Weiser, Seattle.—p. 642.
Effects of Sodium Deprivation on Animal Organism. Elsa Orent-Keiles, A. Robinson and E. V. McCollum, Baltimore.—p. 651.

Seasonal Variations in Number of Platelets.—Tocantins, by obtaining counts of the platelets and erythrocytes from twenty-eight white male medical students, observed that the number of platelets in arterial and venous blood from the upper extremity in man is significantly higher in the winter than in the spring; there are no significant differences between counts on cutaneous blood in the two seasons. In the winter the number of platelets in arterial blood is significantly higher than in venous blood; it is also significantly higher in venous than in cutaneous blood. In the spring there are no statistically significant differences between the means of platelet counts on blood from the three sources. There are no significant differences between the erythrocyte counts in the two seasons.

American Journal of Public Health, New York

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Developing a Housing Program in a Southern City. L. M. Graves and A. H. Fletcher, Memphis, Tenn.—p. 645.
Shrimp Inspection. J. O. Clarke, Chicago.—p. 655.
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Compensation Aspect of Industrial Hygiene. W. M. Graff, New York.—p. 667.
Progress in Industrial Sanitation, with Especial Reference to Control of Industrial Dust. T. Hatch, New York.—p. 671.
Inaugurating Grade A Pasteurized Milk in the City of Chicago. H. N. Bundesen, Chicago.—p. 680.
Practical Aspects of Public Mental Hygiene. B. Liber, New York.—p. 685.
Observations on Practical Value of Complement Fixation Test in Diagnosis of Amebiasis. C. F. Craig, New Orleans.—p. 689.
Amebiasis in Chicago (December 1933 to June 1936). Bertha Kaplan Spector, Chicago.—p. 694.
Infant Mortality in New York City. J. L. Rice, Margaret Barnard, T. J. Duffield and J. L. Blumenthal, New York.—p. 701.
Institutional Mortality with Reference to Residence Allocation. Elizabeth Parkhurst, Albany, N. Y.—p. 722.

Am. J. Roentgenol. & Rad. Therapy, Springfield, Ill.

38: 1-244 (July) 1937

The Healthy Chest. E. P. Pendergrass and P. J. Hodes, Philadelphia.—p. 15.
Right Oblique Horizontal (Supine) Position in Demonstration of Duodenal Ulcer Crater: Preliminary Report. E. Schons, St. Paul.—p. 42.
A Roentgenologist Looks at Sinus Disease. K. Kornblum, Philadelphia.—p. 48.
*Saliva Cell Count in Myelogenous Leukemia. K. D. A. Allen and L. Dickey, Denver.—p. 57.
Centralized Control for Roentgen Apparatus. P. D. Hay Jr., Florence, S. C.—p. 72.
Ventriculographic Localization of Intracranial Tumors: I. Tumors Involving Posterior Part of Third Ventricle and Thalamus. V. C. Johnson and C. F. List, Ann Arbor, Mich.—p. 77.
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Osteitis Deformans (Paget's Disease): Fissure Fractures, Their Etiology and Clinical Significance. M. L. Allen and R. L. John, Philadelphia.—p. 109.
Radiation Treatment of Epithelioma of the Lip. W. C. Hall, Philadelphia.—p. 116.
Dust Hazard Among Foundrymen. L. H. Osmond, Pittsburgh.—p. 122.
*Radiation Treatment of Hyperthyroidism: Report of Results at the Hospital of the University of Pennsylvania During Seven and One-Half Years Ending July 1, 1933. J. H. Harris, Harrisburg, Pa.—p. 129.
Planigraphy: II. Mathematical Analyses of Methods, Description of Apparatus and Experimental Proof. J. R. Andrews and R. J. Stava, Cleveland.—p. 145.
Rhomboid Fossa of Clavicle. E. P. Pendergrass and P. J. Hodes, Philadelphia.—p. 152.
Increasing Value of Intravenous Urography by Improvements in Technic. R. A. Berger, Richmond, Va.—p. 156.
Treatment of Hypophysial Stalk Tumors by Evacuation and Irradiation R. C. Carpenter, G. W. Chamberlin and C. H. Frazier, Philadelphia.—p. 162.
Roentgen Therapy in Acute Para-Arthritis. A. A. de Lorimier, Ancon, Canal Zone.—p. 178.
Hypoproteinemia as Factor in Retardation of Gastric Emptying After Operations of Billroth I or II Types. R. P. Barden, I. S. Ravdin and W. D. Frazier, Philadelphia.—p. 196.
Effects of Irradiation on Gliomas. C. H. Frazier, B. J. Alpers, E. P. Pendergrass and G. W. Chamberlin, Philadelphia.—p. 203.

Saliva Cell Count in Myelogenous Leukemia.—Allen and Dickey agree with Isaacs' conception of the effects of irradiation on chronic myelogenous leukemia (that in health a fairly constant relationship exists between the cells in the saliva and those in the blood and that in aleukemic leukemia as the leukocytes of the blood decrease in number the saliva count mounts) and urge frequent, detailed microscopic studies of the blood and saliva by those who treat myelogenous leukemia. Ten cases of chronic myelogenous leukemia are cited and a detailed consideration of their response to irradiation as depicted in graphs of blood and saliva counts is given. The major effect of irradiation on the blood is maturation of the myelocyte to the polymorphonuclear stage and division and reproduction of primitive myeloblasts and myeloblasts, as described by Isaacs. Irradiation under certain circumstances and special dosage may cause death of some of the abnormal blood cells. A little evidence which points toward an irradiation effect on the blood stream-gastro-intestinal threshold of leukopedesis is presented.

Radiation Treatment of Hyperthyroidism.—Harris reports on the 350 patients that were given radiation therapy for toxic goiter at the University Hospital. Of this number only 244 could be used for statistical study. The women outnumbered the men about four to one. The majority of the patients were in the third, fourth or fifth decade of life. The duration of symptoms ranged from a few weeks to two years or more. The greatest number had been ill less than six months. The patient whose major symptom is nervousness, who has a small soft goiter and who has been ill six months or less has the best prognosis for relief by irradiation. All children with thyrotoxicosis should be given irradiation before surgical intervention is considered. Adequate irradiation of the thyroid in this disease is followed sufficiently often by satisfactory permanent remission to justify a carefully controlled trial. If definite improvement does not appear within three months, or if a marked exacerbation of the disease appears at any time, irradiation should be stopped and preparation for thyroidectomy begun. By such a course the thyroid can be saved and this is important to the adolescent whose endocrines are in the process of adjustment for adult life. Serious visceral changes can be prevented by a careful selection of patients and

by careful observation and check of the status of the disease while treatment is being given. A temporary exacerbation of the symptoms of thyrotoxicosis can be expected for from twenty-four to seventy-two hours after the first few treatments. This reaction is not serious and ordinarily subsides with rest and sedatives. In the occasional patient there is a slight to mild cutaneous reaction in the area treated. This is never more than a first degree reaction and soon disappears. The possibility of alopecia developing while the patient is under treatment must be kept in mind. Not infrequently this is a symptom of the disease and is never the result of irradiation if ordinary care is taken to protect the hair with lead rubber. A release card, which mentions the possibility of alopecia, should be signed by the patient or responsible relative. There is also the possibility of depressing the thyroid activity to the point at which myxedema develops. This can be readily controlled by thyroid medication. The size of the goiter is influenced little if any by irradiation. With the present selection of cases, excellent results are being obtained, as evidenced by the 90 per cent of cases improved during the years 1932 and 1933. The latter cases have not been followed long enough for definite conclusions to be drawn. Some of the good results during the latter period are probably due to a better recognition of the type of case amenable to irradiation. Postoperative recurrences are treated without selection.

Arkansas Medical Society Journal, Fort Smith

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What the Practitioner Should Know About Urology. J. H. Sanford, St. Louis.—p. 33.

Lateral Sinus Thromophlebitis: Clinical Study. H. W. Lyman, St. Louis.—p. 38.

Endocrinology, Los Angeles

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Neural and Endocrine Factors in Bodily Defense. F. M. Pottenger, Monrovia, Calif.—p. 449.

Emphasis of Growth Effect of Prolactin on Crop Gland of Pigeon by Arrest of Mitoses with Colchicine. C. P. Leblond and E. Allen, New Haven, Conn.—p. 455.

Effects of Hypophysial Implants from Normal Mature Guinea-Pigs on Sex Organs of Immature Guinea-Pigs. Ida Genther Schmidt, Cincinnati.—p. 461.

Effects of Hypophysial Implants from Guinea-Pigs with Irradiated Ovaries on Sex Organs of Immature Guinea-Pigs. Ida Genther Schmidt, Cincinnati.—p. 469.

Effect of Emmenin on Gonadotropic Hormone Excretion in Castrates and Spontaneous Menopause. U. J. Salmon and R. T. Frank, New York.—p. 476.

Effect of Hypophysial Injection and Implants on Activity of Hypophysectomized Rats. C. P. Richter and J. F. Eckert, Baltimore.—p. 481.

Excretion of Gonadotropin by Normal Human Males After Ingestion and Injection of Extracts of Pregnancy Urine. M. H. Friedman and G. L. Weinstein, Philadelphia.—p. 489.

Ovaries Secrete Male Hormone: I. Restoration of Castrate Type of Seminal Vesicle and Prostate Glands to Normal by Grafts of Ovaries in Mice. R. T. Hill, New Haven, Conn.—p. 495.

Male Hormone and Testis-Comb Relationship in the Chick. W. R. Breneman, Bloomington, Ind.—p. 503.

Reversal of Estrin-Induced Prostatic Pathology in Mice by Use of Testosterone. H. P. Rusch, Madison, Wis.—p. 511.

Use of Glycerol Extract of Adrenal Cortex in Treatment of Adrenal Insufficiency. F. A. Hartman, G. W. Thorn and R. R. Durant, Columbus, Ohio.—p. 516.

Factors Determining and Limiting Growth of Transplanted Suprarenal Cortical Tissue. L. C. Wyman and Caroline tum Suden, Boston.—p. 523.

*Evidence of Protective Influence of Adrenal Hormones Against Tuberculosis in Guinea-Pigs. F. M. Pottenger Jr. and J. E. Pottenger, Monrovia, Calif.—p. 529.

Specificity of Progesterone in Inducing Sexual Receptivity in Ovariectomized Guinea-Pig. R. Hertz, R. K. Meyer and M. A. Spielman, Madison, Wis.—p. 533.

Effect of Artificially Raised Metabolic Rate on Electro-Encephalogram of Schizophrenic Patients. M. A. Rubin, L. H. Cohen and H. Hoagland, Worcester, Mass.—p. 536.

Influence of Fasting on Thyroparathyroidectomized Albino Rats. R. D. Templeton, E. L. Borkon, Valeria Genitis and E. A. Galapeaux, Chicago.—p. 541.

Protective Influence of Adrenal Hormones Against Tuberculosis.—After administering adrenal products to tuberculous patients who suffered greatly with malaise and lack of vigor—some with toxemia, others without, and noting an improvement in their vigor, a lessening of their fatigue and an apparent beneficial effect on the tuberculous process, the Pottengers carried out experiments on guinea-pigs to test whether extracts made from the adrenal containing adrenal cortex extract would exert any effect on tuberculosis either in the susceptibility to infection or in the character of the lesion. The longevity and the extent and nature of the disease found at necropsy in animals treated with cortical extract are compared with untreated controls and animals treated with other substances. Of twenty-four untreated animals inoculated with 100 ± 10 tubercle bacilli obtained from fresh human sputums and five inoculated but treated with insulin, all became infected. Twelve of forty-three inoculated animals (28 per cent) that received cortical extract for periods varying from ten days to the entire life of the animals showed at necropsy no evidence of tuberculous infection. It was further found that infection, when present, differed from the infection in untreated animals in that it was milder and less extensive.

Journal of Biological Chemistry, Baltimore

118: 549-814 (May) 1937.

Substances Which Inhibit Color Development in Sullivan Method for Cystine. J. C. Andrews and Kathleen Crandall Andrews, Philadelphia.—p. 555.

Lipid and Mineral Distribution of Serum and Erythrocytes in Hemolytic and Hypochromic Anemias of Childhood. Betty Nims Erickson, H. H. Williams, Frances Cope Hummel, Pearl Lee and Icie G. Macy, Detroit.—p. 569.

Lipid and Mineral Distribution of Serum and Erythrocytes in Pernicious Anemia: Before and After Therapy. H. H. Williams, Betty Nims Erickson, S. Bernstein, Frances Cope Hummel and Icie G. Macy, Detroit.—p. 599.

Blood as Physicochemical System: XI. Man at Rest. D. B. Dill, H. T. Edwards and W. V. Consolazio, Boston.—p. 635.

Id.: XII. Man at High Altitudes. D. B. Dill, J. H. Talbott and W. V. Consolazio, Boston.—p. 649.

Diffusion Coefficient of Inulin and Other Substances of Interest in Renal Physiology. J. J. Bunim, W. W. Smith and H. W. Smith, New York.—p. 667.

Further Studies on Concentration of Antipellagra Factor. C. J. Koehn Jr. and C. A. Elvehjem, Madison, Wis.—p. 693.

Application of Spectrographic Analysis to Quantitative Determination of Sodium, Potassium, Calcium and Magnesium in Biologic Fluids. K. B. Thomson and W. C. Lee, Ann Arbor, Mich.—p. 711.

Vitamin C in Vegetables: VI. Critical Investigation of Tillmans Method for Determination of Ascorbic Acid. G. L. Mack and D. K. Tressler, Geneva, N. Y.—p. 735.

Formation of Methemoglobin by Various Tissues. F. Bernheim and H. O. Michel, Durham, N. C.—p. 743.

Effect of Metaphosphoric Acid and Some Other Inorganic Acids on Catalytic Oxidation of Ascorbic Acid. C. M. Lyman, M. O. Schultze and C. G. King, Pittsburgh.—p. 757.

Journal-Lancet, Minneapolis

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Fulminating Laryngotracheobronchitis. N. A. Youngs and P. H. Woutat, Grand Forks, N. D.—p. 287.

Tularemic Pneumonia. E. G. Hubin, Deerwood, Minn.—p. 289.

*Theobromine Calcium Gluconate in Treatment of Cardiovascular Disease. T. Ziskin, Minneapolis.—p. 292.

Eyeground Examination as an Aid to Prognosis in General Medicine. M. F. Fellows, Duluth, Minn.—p. 294.

Acute Abdominal Symptoms Complicating Diagnosis: Case Reports. J. L. McLeod, Grand Rapids, Minn.—p. 295.

Artificial Pneumothorax: Standard Method of Treatment. J. A. Myers, Minneapolis, and Ida Levine, Brooklyn.—p. 298.

Unit Method of Teaching Hygiene in College. Helen L. Coops and L. B. Chenoweth, Cincinnati.—p. 306.

Physiologic Principles of Importance in Heart Failure and Its Treatment. M. B. Visscher, Minneapolis.—p. 309.

Theobromine Calcium Gluconate.—Because of the known tendency of theophylline preparations to cause gastric irritation as a result of their prolonged use in cardiovascular disease, Ziskin studied the effects of theobromine calcium gluconate in fifty-two cases. Among these were twelve cases of hypertension, eleven cases of hypertension with cardiac decompensation, seventeen cases of coronary disease with angina pectoris and twelve cases of coronary disease with cardiac decompensation. Thirty-two were bed patients and twenty were ambulant. Many of these patients had been taking theophylline with ethylene diamine before being started on theobromine calcium gluconate. Other drugs, such as digitalis, were used when necessary. Theobromine calcium gluconate was given in doses of 0.32 Gm. three times daily. This dose was later increased in some patients to 0.65 Gm. three times daily. There was not a single instance of nausea or gastric irritation in any patient from the use of this preparation. Some of the patients have been taking this drug continuously now for a period of nine months. Favorable results were noted in the majority of the patients in relieving symptoms of congestive failure, angina and dyspnea,

and in some cases the results were very striking. In comparing the effects of aminophylline with theobromine calcium gluconate on the relief of cardiac symptoms, more favorable results were noted with the use of the latter. Eight of the fifty-two patients reported greater relief of pain when taking theobromine calcium gluconate. Twelve patients, who were taking the theobromine preparation and then changed to aminophylline, asked to be put back on theobromine calcium gluconate, stating that they received greater relief from their symptoms when taking this preparation.

Journal of Nutrition, Philadelphia

14: 1-110 (July) 1937

Effect of Administration of Acid and Alkaline Salts on Ascorbic Acid Content of Guinea-Pig Tissues. Estelle E. Hawley, R. G. Daggs and Doran J. Stephens, Rochester, N. Y.—p. 1.

Comparative Experiments with Canned, Home Cooked and Raw Food Diets. E. F. Kohman, W. H. Eddy, Mary E. White and N. H. Sanborn.—p. 9.

Influence of Specific Mineral Deficiencies on Growth of Body and Organs of Rat. E. S. Eppright and A. H. Smith, New Haven, Conn.—p. 21.

Growth on Histidine and Lysine Administered by Subcutaneous or Intraperitoneal Injection. R. M. Conrad and C. P. Berg, Iowa City.—p. 35.

*Claim for New Essential Dietary Factor in Mammalian Liver. Nellie Halliday and H. M. Evans, Berkeley, Calif.—p. 45.

Vitamin B and G Values of Peas and Lima Beans Under Various Conditions. Mary Swartz Rose and Esther H. Funnell Phipard, New York.—p. 55.

Effect of Acid-Base Content of Diet on Production and Cure of Rickets, with Especial Reference to Citrates. A. T. Shohl, Boston.—p. 69.

Symptomatology and Pathology of Potassium and Magnesium Deficiencies in Rat. G. A. Schrader, C. O. Prickett and W. D. Salmon, Auburn, Ala.—p. 85.

Essential Dietary Factor in Mammalian Liver.—Halliday and Evans performed experiments in an attempt to confirm the results of Elvehjem and his co-workers regarding the new essential dietary factor found in mammalian liver. Their results appear to indicate that the alcohol-ether precipitation procedure carries down vitamin B_6, since the precipitate is highly effective in preventing and curing severe dermatitis. They seemed to obtain a separation of flavine and vitamin B_6 by this method, the flavine passing into the supernatant liquid. Their results do not demonstrate a new factor essential in addition to vitamins B (B_1), flavine, B_4, B_6 and "B_2" as postulated by the other workers. However, until or unless results obtained in one laboratory can be duplicated in another, it is difficult to draw absolute conclusions. The difference in results may be due to biologic variations in the experimental animals. If such is the case, it will be difficult for one laboratory to confirm results obtained in another.

Journal of Pharmacology & Exper. Therap., Baltimore

60: 235-368 (July) 1937

Reticulocytosis in the Guinea-Pig: I. Use of Standard Guinea-Pigs in Assay of Anahemin. M. M. O. Barrie, London, England.—p. 235.

Id.: II. Haematopoietic Response of "Reactive" Guinea-Pigs to Anahemin and Other Substances. M. M. O. Barrie, London, England.—p. 245.

Effect of Galactose on Metabolism of Ethyl Alcohol in Man. T. M. Carpenter and R. C. Lee, Boston.—p. 254.

Effect of Glucose on Metabolism of Ethyl Alcohol in Man. T. M. Carpenter and R. C. Lee, Boston.—p. 264.

Effect of Fructose on Metabolism of Ethyl Alcohol in Man. T. M. Carpenter and R. C. Lee, Boston.—p. 286.

Human Autonomic Pharmacology: X. Synergism of Prostigmin and Mecholyl. A. Myerson, M. Rinkel, J. Loman and P. Myerson, Mattapan, Mass.—p. 296.

Propylene Glycol: Rate of Metabolism Absorption and Excretion, with Method for Estimation in Body Fluids. A. J. Lehman and H. W. Newman, San Francisco.—p. 312.

Studies on Sex Difference in Rats in Tolerance to Certain Barbiturates and to Nicotine. H. G. O. Holck, M. A. Kanàn, Lucille M. Mills and E. L. Smith.—p. 323.

Methods of Anesthetizing Chimpanzees. J. H. Elder, New Haven, Conn.—p. 347.

Chemical Studies on Moccasin Venom: I. Some Properties of Hemorrhagic and Hemolytic Components. S. M. Peck and W. Marx, New York.—p. 358.

Kansas Medical Society Journal, Topeka

38: 281-324 (July) 1937

Relation of Life Insurance to Medical Practice. W. E. Thornton, Fort Wayne, Ind.—p. 281.

Treatment of Breast Cancer: Preliminary Report of 205 Cases. T. G. Orr and G. M. Tice, Kansas City.—p. 287.

Anomalous Digastric Muscle. H. B. Latimer, F. D. Baty and C. T. Jones, Lawrence.—p. 290.

Treatment of General Paresis. M. E. Hyde, Osawatomie—p. 291.

Kentucky Medical Journal, Bowling Green

35: 317-358 (July) 1937

Ambulatory Treatment of Diabetic. S. T. Simmons, Louisville.—p. 320.

Use of Newer Insulin Preparations. B. H. Hollis, Louisville.—p. 323.

*Use of Pavaex in Diabetes. C. M. Edelen, Louisville.—p. 326.

Effect of Diet on Outcome of Pregnancy. P. Rucker, Richmond, Va.—p. 329.

Nephroptosis with Case Summaries. L. Atherton, Louisville.—p. 332.

Mental Diseases and the General Practitioner. E. S. Dunham, Edmonton.—p. 334.

Office Treatment of Rectal Diseases. W. R. Houston, Erlanger.—p. 338.

Sequels of X-Ray Treatment. C. D. Enfield, Louisville.—p. 341.

Treatment of Abscess of Liver. J. G. Sherrill, Louisville.—p. 344.

Differentiation Between Medical and Surgical Gallbladder Diseases. S. A. Overstreet, Louisville.—p. 346.

Medical Management of Gallbladder Disease. S. A. Overstreet, Louisville.—p. 348.

Glycosuria Following Intravenous Administration of Glucose. R. Sparkman, Lexington.—p. 355.

Passive Vascular Exercise in Diabetes.—Edelen calls attention to the harmful effect of heat in the form of hot water bottles, hot packs, electric pads or cradles with electric lights. Accompanying the impaired circulation there is an impaired sensory mechanism and before one realizes it irreparable harm has been done to a toe or foot, with the formation of blebs or blisters. Heat also increases the metabolism of tissues in an extremity in which there is already a deficient circulation, and this leads to harmful results. It is in this instance that the use of passive vascular exercise is valuable, for with increase in cellular metabolism caused by heat passive vascular exercise therapy will bring about the needed increase in blood supply. The use of heat in combination with the exercise overcome vasospasm. It is a vital aid in developing collaterals and hastens the demarcation of spreading gangrene and is quite a factor in converting moist gangrene to dry gangrene. The best results from passive vascular exercises are obtained in patients with involvement of major arterial pathways and the least benefit is obtained in persons with extensive sclerosis of the arterioles of the feet and toes. In diabetic patients the so-called arteriolar bed is fairly good and passive vascular exercise valuable in restoring a circulatory balance. This mechanical means of reducing environmental pressure will not obviate surgical intervention but it will tend to more conservative surgical procedures, aid in demarcation of gangrene and promote healing.

Michigan State Medical Society Journal, Lansing

36: 441-524 (July) 1937

Roentgenologic Distinction of Benign from Malignant Ulcerating Lesions of Stomach. B. R. Kirklin, Rochester, Minn.—p. 453.

Treatment of Functional Gynecologic Disorders by Pituitary and Ovarian Irradiation. F. A. Ford and H. M. Nelson, Detroit.—p. 457.

Radiation Therapy in Dermatology. C. K. Hasley, Detroit.—p. 461.

Primary Carcinoma of Lung. J. C. Kenning, Detroit.—p. 466.

Id.: Pathology. O. A. Brines, Detroit.—p. 468.

Treatment of Carcinoma of Lung. T. Leucutia, Detroit.—p. 470.

Cancer of Lung: Historical and Medical Aspects. W. M. Donald, Detroit.—p. 472.

*Syncope as Result of Circulatory Disorders. G. Herrmann, Galveston, Texas.—p. 475.

Graduate of Fifteen Years Ago Looks Back. C. F. Dixon, Rochester, Minn.—p. 483.

Syncope as Result of Circulatory Disorders.—Ten years ago Herrmann began a study of the causes of sudden disability as determined in the emergency service of La Charité in New Orleans. The result of this study, covering the five years 1926 to 1930 inclusive, indicates that medical conditions and particularly cardiovascular diseases play an important part in the production of unconscious states. In the study of any patient in coma or recovering from a syncopal seizure a swift general survey is in order, followed by neurologic and cardiovascular examinations. In the general survey the patient's color should be noted, with particular reference as to whether there is a rapidly increasing pallor or flushing or cyanosis or beads of perspiration about the face. A search should be made for evidences of trauma, scalp lacerations, bruises, depressions or fractures of the skull and attempts should be made to determine whether the trauma was administered before or after the faint. Odors such as the aroma of alcoholic beverages, acetone or other poison should be investigated. The character of the respiration should be noted. The neurologic examination should consider the eyelid reflex of defense closure, the tonus

or flaccidity of the extremities, the tonus reflex of the neck and the involuntary reflex thumb extension and opposition on finger flexion (Mayer-Stiefler). The signs of greatest significance in the cardiovascular examination are usually to be found in the study of the heart action and blood pressure. A disturbed cardiac mechanism may result in a rapid or slow heart rate or a transient total absence of the heart beat. Auscultation may reveal the presence of murmurs of an acute or chronic valvulitis. The blood pressure in instances of cerebral vascular accident may be high or may be alternating, but usually temporary or permanent hypotension is to be found. Local circulatory disturbances involving the cerebral arteries dominate the group and attest the importance of blood pressure, eyeground and neurologic examinations.

New England Journal of Medicine, Boston

217: 85-122 (July 15) 1937

Clinical Aspects of Primary Carcinoma of Gallbladder. I. R. Jankelson, Boston.—p. 85.

Use of Gonadotropic Hormone of Pregnancy Urine in Treatment of Male Sexual Underdevelopment. C. H. Lawrence and A. M. Harrison, Boston.—p. 89.

Maternal and Child Health and Crippled Children's Programs Under the Social Security Act. Doris A. Murray, Washington, D. C.—p. 94.

Fracture of Femoral Neck Treated by Internal Fixation: Report of Seventeen Consecutive Cases. H. R. Wheat, Springfield, Mass.—p. 97.

Hereditary Ovalocytosis (Human Elliptic Erythrocytes): Observations on Ten Cases in One Family. M. B. Strauss and Geneva A. Daland, Boston.—p. 100.

New Jersey Medical Society Journal, Trenton

34: 429-480 (July) 1937

The Doctor's View of Hospitalization Insurance. E. A. Ill, Newark.—p. 435.

Medical-Dental Bureau and Hospitalization Insurance. H. H. Satchwell, Newark.—p. 440.

Nurse Education and Training for Care of Sick. A. C. Zehnder, Newark.—p. 443.

Social Security and Hospital Relationships. T. K. Lewis, Camden.—p. 447.

Newer Methods in Diagnosis and Prevention of Whooping Cough. G. F. Leonard, New Brunswick.—p. 451.

Infertility in Women: Maternal Welfare Article Number Seventeen. A. Meurlin, East Orange.—p. 455.

New York State Journal of Medicine, New York

37: 1271-1356 (July 15) 1937

Endocrines: Relation to Blood Disorders. C. Reich, New York.—p. 1271.

Supraclavicular Brachial Plexus Block: Accessory Therapeutic Measure in Arthritis of Shoulder Joint and Allied Conditions. J. M. Tarsy, Brooklyn, and O. Steinbrocker, New York.—p. 1275.

Protamine Zinc Insulin: Hypoglycemic Reaction. E. Tolstoi, New York.—p. 1279.

*Buergi's Theory: Applied to Treatment of Secondary Anemia. H. Almour, New York.—p. 1283.

Systolic Murmur: Symptomatic Importance in Heart Muscle Weakness. G. Zuelzer, New York.—p. 1289.

Attachment for Use in Conjunction with the Scalpel. F. M. Al-Akl, Brooklyn.—p. 1293.

Undulant Fever (Brucellosis): Difficulties in Diagnosis and Treatment: Supplementary Report on Fifty-One Cases with Observations on 120 Additional Cases. H. J. Harris, Westport.—p. 1295.

Buergi's Theory Applied to Treatment of Secondary Anemia.—Almour selected seven patients with secondary anemia and has treated them with a combination of the hematopoietic drugs. In the application of Buergi's principle to the treatment of secondary anemia there is available iron which serves as a hemoglobin builder; copper, which acts to stimulate erythrocytic formation; liver, which contains the intrinsic factor; vitamin B as the extrinsic factor, and calcium, which acts on bone and cell permeability. Thus, when combining all these, a multiplicity effect should result because of the different pharmacologic points of attack. A preparation containing liver extract 2.4 grains, iron albuminate 1.66 grains, calcium gluconate 1.2 grains, two Sherman units of vitamin B, and ten units of vitamin G was selected. The combined small doses, in preference to large doses of a single ingredient, should, according to Buergi's theory, produce the desired effect. In the patients observed, the symptoms of lassitude, fatigue, loss of appetite, and the like, cleared up after two weeks of therapy. The rise in hemoglobin was prompt, and in some instances an increase of 10 per cent was recorded after two weeks. The increase in red cells was not as marked. However, after one month most patients showed counts of approximately 4,500,000 red cells. Two cases, while other than secondary anemia, are also included because they serve to confirm Hesse's method of using iron as a red cell stimulant and copper as a detoxifying agent to thyroxine.

Ohio State Medical Journal, Columbus

33: 721-832 (July) 1937

Diagnosis and Surgical Treatment of Abdominal Surgical Conditions in Young Infants. L. B. Johnston, Cincinnati.—p. 737.

Some Interesting and Obscure Problems in Diagnosis and Treatment of Diabetes. H. J. John, Cleveland.—p. 741.

Hypoglycemia in Infancy and Childhood. J. G. Kramer, Akron.—p. 749.

Better Care of Uterine Cervix. C. D. Heisel, Cincinnati.—p. 755.

Intrapontile Tumors: Clinicopathologic Study. J. Sagebiel, Dayton.—p. 760.

Total Pneumonectomy. S. O. Freedlander, Cleveland.—p. 769.

Back Disorders of Psychic Origin. J. L. Fetterman, Cleveland.—p. 777.

Case Record Presenting Clinical Problems: Acute Abdominal Catastrophe in Forty-Three Year Old Woman in the Seventh Month of a Pregnancy. H. L. Reinhart, Columbus.—p. 782.

Bedside Medicine. R. L. Johnston, Cincinnati.—p. 784.

Radiology, Syracuse, N. Y.

29: 1-130 (July) 1937

Gastric Mucosal Relief: Modified Sedimentation Method, Using Colloidally Suspended Barium Sulfate: Preliminary Report. R. A. Arens and S. D. Mesirow, Chicago.—p. 1.

Biologic Measurement of Depth Doses. C. Packard, New York.—p. 12.

Determination of X-Ray Quality by Filter Methods. L. S. Taylor, Washington, D. C.—p. 22.

Differential Diagnosis of Bone Tumors of Extremities by Arteriography. P. L. Fariñas, Havana, Cuba.—p. 29.

Gangrene of Face Produced by Lymphosarcoma. E. M. Shebesta, Detroit.—p. 33.

*Miliary Calcifications in the Spleen. T. M. Berman, Minneapolis.—p. 37.

Radiation of the Thyroid: Experimental Study in Radiosensitivity of the Thyroid. C. T. Eckert, J. G. Probstein and S. Galinson, St. Louis.—p. 40.

Biologic Test of Inverse Square Law as Applied to Roentgen Radiation. H. D. Kerr, Iowa City, and T. C. Evans, College Station, Texas.—p. 45.

Some Lawsuits I Have Met and Some of the Lessons to Be Learned from Them (Second Series, Second Instalment). I. S. Trostler, Chicago.—p. 52.

Investigation of X-Ray Films and Developing Solutions. C. Weyl, S. R. Warren Jr. and D. B. O'Neill, Philadelphia.—p. 64.

Photographic Images Obtained in Total Darkness by Both Penetration and Reflection of Infra-Red Radiation. L. C. Massopust, Milwaukee.—p. 79.

Sources of Error in Radiologic Interpretation in Tumors of Bone. A. C. Singleton, Toronto.—p. 83.

Roentgenologic Importance of Left Oblique Positon in Cholecystography. M. Feldman, Baltimore.—p. 89.

Dependence of X-Ray Erythema on Wavelength. J. C. Hudson, Boston.—p. 95.

*X-Ray Therapy in Amenorrhea. A. B. Friedman and B. Seligman, New York.—p. 99.

Value of Preliminary Film Without Opaque Mediums in Diagnosis of Abdominal Conditions. J. F. Kelly and D. H. Dowell, Omaha.—p. 104.

Miliary Calcifications in the Spleen.—In the last three years Berman has observed eighteen cases of miliary calcification in the spleen, discovered accidentally during the course of x-ray examinations of the chest and abdomen. Three cases showed a quiescent adult type of pulmonary tuberculosis. One patient, a girl 13 years of age, presented multiple calcified Ghon's tubercles in the right lung. Of these four, only one gave a clinical history of tuberculosis (urogenital). Another patient, 28 years of age, had a normal chest roentgenogram, and the etiology of the splenic calcifications here is doubtful. The patient's age favors tuberculosis, but the absence of pathologic changes in the lung favors phleboliths. Two other cases are also doubtful but probably represent phleboliths. The remaining cases gave no clinical history of tuberculosis. In four, roentgenograms of the chest showed no pathologic signs; six exhibited calcified Ghon's tubercles. Three came to necropsy, including two which showed calcified primary tuberculous lesions in the lungs. Histologic study of all three showed the calcifications to be phleboliths. This intimates strongly that the mere presence of a Ghon's tubercle does not indicate the tuberculous nature of miliary splenic calcifications.

X-Ray Therapy in Amenorrhea.—Friedman and Seligman treated nine consecutive cases of amenorrhea due to endocrinopathies with small doses of radiation and regular menstruation was reestablished in all. Endocrinologic stigmas other than the amenorrhea were not influenced by the treatment. The

dosage used in the treatment of the pituitary region was approximately as follows: from 200 to 250 roentgens at the sella turcica. The factors were 200 kilovolts, 0.5 mm. of copper plus 1 mm. of aluminum, 40 cm. focus skin distance, and 200 roentgens to each of two lateral fields and one anterior field. The dosage used in the ovarian irradiation was kept below 100 roentgens at the ovaries and administered through three or four pelvic fields, usually two anterior and two posterior pelvic ports. Regardless of the mode of action, evidence is fast accumulating that x-ray therapy to the pituitary gland and/or ovaries causes a return of the normal menstrual cycle. In some persons the menses are reestablished for a time and a second course of irradiation has to be given.

Science, New York

86: 65-86 (July 23) 1937.

*Antiscorbutic Properties of Salt of Iron and Ascorbic Acid. M. Pijoan, Boston.—p. 80.
The Maynard Plum: Carrier of Peach Mosaic Virus. E. W. Bodine and L. W. Durrell, Greeley, Colo.—p. 81.
A Companion Word for Plankton. R. T. Morris, Stamford, Conn.—p. 81.
Crystalline Protein with High Lactogenic Activity. A. White, H. R. Catchpole and C. N. H. Long, New Haven, Conn.—p. 82.
Protective Action of Certain Purines Against Liver Necrosis Produced by Carbon Tetrachloride and Chloroform. R. C. Neale, Philadelphia.—p. 83.
Cortico-Adrenal and Neural Effects on Gonadotropic Activity of Pituitary. H. B. Friedgood, Boston.—p. 84.

Antiscorbutic Properties of Salt of Iron and Cevitamic Acid.—Pijoan limits his communication to a discussion of a salt of reduced iron and the levorotatory form of cevitamic acid which has proved itself nontoxic when administered intravenously to either experimental or human subjects and has been used in his clinic for the treatment of secondary anemias. This salt was found to have a highly antiscorbutic property when given intravenously, daily, over a period of six days to a patient with severe scurvy. A daily dose of 250 mg. was sufficient to bring the plasma cevitamic acid level from 0.02 to 1.2 mg. per hundred cubic centimeters and the withdrawal of marked scorbutic symptoms. This salt not only is successful in bringing ferrous iron into the treatment of secondary anemias but has valuable antiscorbutic properties in which single daily doses produce prolonged and increased plasma cevitamic acid values.

Southern Medical Journal, Birmingham, Ala.

30: 665-768 (July) 1937

Subtentorial Tumors. W. T. Coughlin, St. Louis.—p. 665.
Roentgenologic Findings in Intracranial Lesions. C. H. Heacock and N. Gotten, Memphis, Tenn.—p. 674.
Correction of Depressed Deformities of External Nose with Rib Graft. L. Cohen, Baltimore.—p. 680.
Choice of Bone Grafts in Fracture Surgery. W. K. West, Oklahoma City.—p. 685.
Intracystic Papilloma and Papillocarcinoma of the Breast. J. G. Dees and H. C. Schmeisser, Memphis, Tenn.—p. 690.
Intestinal Obstruction Due to Posture. R. A. Woolsey, St. Louis.—p. 696.
Acute Mechanical Intestinal Obstruction: Treatment and Results. H. B. Stone and J. C. Owings, Baltimore.—p. 699.
Gallbladder Disease: Evaluation of Clinical and Radiologic Aspects in 700 Cases. A. L. Levin and M. Shushan, New Orleans.—p. 705.
Patent Urachus. W. P. Herbst, Washington, D. C.—p. 711.
Morbidity and Mortality in Supravaginal versus Complete Hysterectomy. Q. U. Newell and W. C. Scrivner, St. Louis.—p. 719.
Responsibility of the Gynecologist to the So-Called Neurotic. L. F. Turlington, Birmingham, Ala.—p. 723.
Hormone Sensitization Test for Pregnancy. G. B. Greene, Birmingham, Ala.—p. 727.
Benign Lymphocytic Choriomeningitis. P. F. Dickens, Washington, D. C.—p. 728.
Comments on Virus Diseases and Their Control. E. W. Goodpasture, Nashville, Tenn.—p. 731.
Autohemotherapy in Dermatology. J. W. Jones and H. S. Alden, Atlanta, Ga.—p. 735.
Hyperglycemia in Skin Diseases. J. R. Allison, Columbia, S. C.—p. 738.
Evaluation of Modern Therapy in Diabetes Mellitus. A. A. Herold, Shreveport, La.—p. 742.
Preventive Pediatrics. H. Casparis, Nashville, Tenn.—p. 746.
General Plan and Objectives of a Maternal and Child Health Program. A. McCown, Washington, D. C.—p. 750.
Molds in Etiology of Asthma and Hay Fever, with Especial Reference to Coastal Areas of Texas. H. E. Prince, Houston, Texas, and Marie Betzner Morrow, Austin, Texas.—p. 754.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

Archives of Disease in Childhood, London

12: 133-192 (June) 1937

Cerebral Sinus Thrombosis in Children. J. H. Ebbs.—p. 133.
Congenital Obliteration of Bile Ducts in a Child Who Lived for Three Years and Three Months. Constance Finlayson.—p. 153.
*Investigation into Health of 1,530 Preschool Children. P. Henderson.—p. 157.
*Effect of Boiling on Nutritive Value of Milk. S. Graham and N. Morris.—p. 169.
Nuclear Jaundice in Neonatal (Umbilical) Sepsis with Jaundice. A. Biemond and S. Van Creveld.—p. 173.

Health of Preschool Children.—Henderson examined 1,530 preschool children to determine at what age physical defects appeared. Of 1,014 children less than 2 years of age, 526 (51 per cent) had physical defects other than constipation and disorders due to faulty methods of feeding; and of the 516 children over this age 362 (70 per cent) had one or more bodily defects. The fifteen most obvious disorders were digestive (104), congenital heart disease (nine), skin disease (145), hernia (fifty-two), orthopedic defects (thirty-six), defects of the nervous system (fifty-five) diseases of the eye (100), rickets (thirteen), enlarged tonsils and adenoids (345), otorrhea (sixty-one), palpable cervical glands (428), carious teeth (245), respiratory diseases (255), anemia (forty-nine) and malnutrition (ninety-five). There were fourteen other defects (thrush, harelip, goiter and the like) that were self evident. The author believes that to state, without qualification, that 60 per cent of the 1,530 children examined had physical defects would be to give a grossly distorted picture of the health of the preschool child. If it is agreed that unusual palpability of neck glands is not necessarily and in fact rarely is a sign of disease and that simple enlargement of the tonsils has no adverse effect on the child's health, only a minority of preschool children will be found to have physical defects other than carious teeth. But a substantial minority (16.6 per cent) have had or still have attacks of bronchitis, which in more than 50 per cent of cases followed an infective condition of the nasopharynx or respiratory tract of some other member of the family. Malnutrition was a problem of importance, but a problem of much greater importance was that 30 per cent of 1,214 families whose economic state was specially investigated had incomes insufficient in amount to buy the food stated by the Nutrition Committee of the British Medical Association to be the minimum essential for health. Carious teeth became a problem only after the age of 2 years, but then it became a serious one and one that increased with age. Though an increasing and more regular attendance at the infant welfare centers will help to improve and foster the health—and thereby the happiness—of the preschool child, it is still felt that no great advance in the standard of health of the citizen of tomorrow can be expected until the problem of adequate feeding of all the children in the community is scientifically and thoroughly managed.

Effect of Boiling on Nutritive Value of Milk.—In deciding whether or not sterilization alters the biologic value of milk, Graham and Morris gave two children aged 10½ and 7½ years a diet that supplied about 50 per cent of the caloric value of the diet and 70 per cent of the total protein in the form of milk. The caloric intake as well as that of protein, minerals and fat was ample. James S. was given boiled milk for three periods of seven days and raw milk for two such intervals. The reverse was true of Peter T. With James S. the retentions of phosphorus, nitrogen and fat showed no significant variations during the whole period of observation. Calcium retention showed a slight increase during the last two weeks on boiled milk. With Peter T., however, the change from raw to boiled and boiled to raw milk produced in each case a great increase in the retention of calcium and phosphorus, owing to a great decrease in fecal output. This increased retention was only apparent, as it was counterbalanced by the increased fecal output during the succeeding week. When the raw milk results are taken together and compared with the figures obtained during the two weeks on boiled milk, it is clear that the retention of calcium oxide and phosphate during the consumption of boiled milk is only slightly lower

than when raw milk was taken. It would appear that the change from raw to boiled milk and vice versa led to temporary periods of constipation. This is an observation which requires to be emphasized in the performance of retention experiments. It is generally held that a period of a week is sufficient for the determination of retention. These observations indicate that in some cases a fortnight may be necessary in order to prevent a temporary alteration producing a fallacious result. The results recorded here indicate that there is no evidence that over short periods the boiling of milk impairs either its absorption or its utilization, when there is an ample supply of proximate principles and minerals and when the caloric intake is adequate. It still remains possible that, over long periods or/and when the intake is no more than sufficient, the sterilization of milk might make a difference to the retention of essential substances.

British Journal of Ophthalmology, London

21: 337-400 (July) 1937

Prognosis in Papilledema. G. Holmes.—p. 337.
Tarsorrhaphia Medialis Vera. N. I. Shimkin.—p. 343.
The Water Binding of the Brain. J. A. van Heuven and P. F. Fischer.—p. 352.
Atrophic Recession of Lamina Cribrosa. A. C. Reid.—p. 361.
Fibrocystic Disease of Frontal Bone (Paget's Osteitis). R. E. Wright.—p. 364.
Acute Dacryo-Adenitis Due to Morax-Axenfeld Diplobacillus. R. E. Wright and K. Koman Nayar.—p. 367.
Angiogliosis Retinae: Report of Two Cases. Ida Czukrász.—p. 368.
Ophthalmic Trephine Scissors. J. E. Martin.—p. 377.

British Medical Journal, London

2: 1-48 (July 3) 1937

*Chronic Monocytic Leukemia: Case. G. S. Smith.—p. 1.
Vesical Extroversion with Control of Micturition. A. R. Thompson.—p. 3.
Tubo-Uterine Implantation for Sterility, Followed by Full-Term Pregnancy. V. B. Green-Armytage.—p. 6.
Gaucher's Disease of Lungs. B. Myers.—p. 8.
Temporary Postponement of Menstruation by Estradiol Benzoate. G. L. Foss.—p. 10.

Chronic Monocytic Leukemia.—Smith believes that, accepting monocytic leukemia as a separate disease, a chronic form, as with the other leukemias, might be expected to occur, and the features of his case seem to warrant its recognition as an example of a chronic leukemia of monocytic type. The spleen, which weighed 1,531 Gm. and was 24 cm. long, was much larger than has been previously described in monocytic leukemia. The size of the spleen implies chronicity. The diagnosis rested between chronic lymphatic, myeloid and monocytic leukemia. The absence of nucleoli from most of the primitive cells, together with the fact that the nucleus was often divided into two or three parts, is quite unlike the picture of either myeloblasts or lymphoblasts; except for the absence of granules they were similar to cells drawn and described by Doan and Wiseman (1934) as premonocytes in a case of monocytic leukemia with a long history, ending in death from intercurrent disease. Two features in the case are worthy of comment: 1. The fact that active erythropoiesis was going on in the bone marrow, and the corresponding absence of any anemia in spite of a leukocytosis of 500,000 per cubic millimeter. A progressive anemia is almost the rule in leukemia of this degree. 2. The spleen was densely infiltrated with monocytes and primitive cells, the latter being more plentiful than in the bone marrow, suggesting that the monocytes were being produced chiefly in the spleen. Death occurred from nephritis.

Glasgow Medical Journal

10: 1-40 (July) 1937

*Diphtheria Immunization in the Nursing Staff of Ruchill Fever Hospital. T. Anderson.—p. 1.
Myasthenia Gravis: Its Treatment by Combination of Prostigmin and Glycine-Ephedrine Therapy. J. W. Macfarlane.—p. 7.

Diphtheria Immunization in Nursing Staff.—Anderson discusses the results of 198 nurses who came under an immunization scheme in which, without a previous Schick test, all received injections of toxoid antitoxin floccules or alum-precipitated toxoid and all were completely protected from diphtheria. The nursing staff of a large fever hospital, admitting annually between 800 and 900 cases of diphtheria, is constantly and closely exposed to the disease. To eradicate the infection completely, a more stringent method of control is necessary than would suffice for the ordinary population. In these circumstances it is not wise to be content with the immunization of the susceptible but it is necessary to ensure that resistance is increased by immunizing the whole staff. Apart from the obvious advantage of using two injections instead of three, alum-precipitated toxoid is no more efficient in the immunizing of adults than toxoid antitoxin floccules.

Journal of State Medicine, London

45: 311-372 (June) 1937

The Royal Institute of Public Health and the Institute of Hygiene: The Margate Congress, 1937. Horder.—p. 311.
Public Opinion and Public Health. G. S. Elliston.—p. 322.
The Preschool Child. The Marchioness of Reading.—p. 329.
The Problem of the Chronic Open Case of Tuberculosis. R. A. Young.—p. 332.
Nutrition and Physical Training. S. Woodwark.—p. 344.
Sports, Games and Sea Bathing. R. Cove-Smith.—p. 350.
Industry and the Health Resort. L. P. Lockhart.—p. 358.
Id. E. Bevin.—p. 367.

Lancet, London

2: 1-60 (July 3) 1937

Observations on Structure of Substances, Natural and Synthetic, and Their Reactions on the Body. E. C. Dodds.—p. 1.
*Study of Cretinism in London, with Especial Reference to Mental Development and Problems of Growth. A. Lewis, with assistance of Nancy Samuel and Janet Galloway.—p. 5.
*Three Cases of Unusual Illness with Eosinophilia, One with Lesions in the Liver Resembling Those of Tularemia. A. P. Thomson, G. H. Wilson and S. McDonald.—p. 9.
Nonparasitic Extradural Cyst of Spinal Canal. T. S.-B. Kelly.—p. 13.
Treatment of Carbuncles. G. Ovens.—p. 16.
Pseudohermaphroditism and Its Treatment: Case. E. L. H. Ellis.—p. 17.
Chronic Hemolytic Streptococcic Infection Treated with *p*-Aminobenzenesulfonamide. A. W. Purdie and R. M. Fry.—p. 18.
Improved Type of Universal Fracture Frame. W. E. Joseph.—p. 20.
Splenectomy for Lymphadenoma Followed by Myeloid Leukemia. A. K. Gordon.—p. 21.

Cretinism in London.—Lewis and his assistants examined seventy-nine patients who had been treated for cretinism. Detailed psychologic tests showed that it is possible for cretins to become mentally normal. The occurrence of other psychologic features, including traits of personality commonly called "obsessional," was established. Comparison of the patient's present intellectual level with treatment received indicated that promptness and continuity of thyroid administration were not alone decisive in determining whether or to what extent the child would remain backward. A few who had normal intelligence quotients had had inadequate treatment; a few with low intelligence quotients had been treated regularly from the time their symptoms appeared. In the majority, however, there was a rough correspondence between adequacy of treatment and intellectual level attained. The other factors which influence psychologic attainment were apparently the stage of development at which symptoms of thyroid deficiency appeared, the degree of this deficiency, the hereditary endowment of the child (as it might be inferred from the intellectual level and other specific features in his family), any cerebral damage either at birth or in infancy and the environmental influences (including special education). Problems of development, as assessed in the somatic and the psychologic spheres, also presented themselves in the inquiry and are discussed.

Unusual Illness with Eosinophilia.—Thomson and his co-workers describe three cases of obscure illness. All the patients had eosinophilia. The first had symptoms of irritability of the colon and mild fever for some weeks. The second had prolonged and more severe fever with symptoms of an acute abdominal crisis and signs of a right subphrenic abscess for which a laparotomy was done; the liver was found to be grossly enlarged and infiltrated with granulomas, which microscopically showed the changes heretofore regarded as characteristic of infection with Bacterium tularense. The third had an attack of what appeared to be simple catarrhal jaundice. All three patients had been shooting rabbits in southwestern Ireland at the end of September 1936 and for ten days were in intimate contact. The first two patients had been shooting together in the same area for more than two months previously. There is no evidence of any epidemic plague among the rabbits, but the local cats were dying in unusual numbers at the time. The first two patients gave negative agglutinations to Bac-

terium tularense and negative skin tests for trichinosis. Careful search for parasites was negative. The possible existence in the British Isles of infection with Bacterium tularense or some allied organism is suggested.

Medical Journal of Australia, Sydney

1: 935-976 (June 19) 1937

Unveiling the Mystery of Growth. J. C. Meakins.—p. 935.
Incidence of Rheumatic Infections in Victoria. H. B. Graham.—p. 944.
Some Principles in the Management of Urethral Stricture. M. G. Sutton.—p. 952.
Malaria and Its Treatment by the General Practitioner. A. E. Finckh.—p. 955.

1: 977-1008 (June 26) 1937

Spastic Paralysis. R. Green.—p. 977.
Surgical Treatment of Spastic Paralysis. N. D. Royle.—p. 979.
*Formol Toxoids in Prophylaxis of Gas Gangrene. W. J. Penfold and Jean C. Tolhurst.—p. 982.
Peripheral Vascular Disease. H. S. Stacy.—p. 989.
Cerebral Softening. J. B. Cleland.—p. 999.

Formol Toxoids in Prophylaxis of Gas Gangrene.—Penfold and Tolhurst find that formol toxoids of Bacillus welchii which have been rendered atoxic for mice in intraperitoneal quantities of 1 cc. produce effective immunity in animals when given in from four to eight large injections. Suspensions of alum precipitates of similar formol toxoids given in two small injections a month apart are excellent immunizing agents in animals. Both active and passive immunity have been demonstrated. The purpose of their research was to determine whether the prophylaxis of gas gangrene in man by the use of formol toxoid was a feasible proposition or not. Their animal experiments suggest that it is, and at an early date they hope to apply it experimentally in man. If the experiments should prove successful, the indications for the use of the prophylactic would probably be in the army, particularly for contingents fighting in Europe, where the highly manured soil is frequently a source of infection, in women before the commencement of their childbearing life or in women about to have abortion induced for any legitimate indication, and for persons who take the risk of serious accidents, such as from farm machinery, motor racing and the like. The use of serum therapeutically in such persons may induce serum sensitiveness, with its attendant risks, which could be avoided by the carrying out of active immunization.

Practitioner, London

139: 1-104 (July) 1937

Old Age. R. Armstrong-Jones.—p. 1.
The Management of Disorders of Nervous System in Old Age. D. McAlpine.—p. 11.
Respiratory Diseases in Old Age. G. Marshall.—p. 21.
Rheumatism in Advancing Years. C. W. Buckley.—p. 28.
The Surgery of Old Age. G. Keynes.—p. 37.
Diet in Old Age. H. Dunlop.—p. 46.
Nursing and Care of the Bedridden Patient. E. C. Pearce.—p. 55.
Diet in Health and Disease: I. Practical Dietetics. V. H. Mottram.—p. 63.
*Radiologic Interpretation of Obscure Pulmonary Lesions. J. B. McDougall.—p. 78.
Mediastinal Pleural Effusion: Notes on Four Cases. F. G. Nicholas and T. A. Fraser.—p. 83.
Tractor Sickness. E. I. Puddy.—p. 90.

Radiologic Interpretation of Obscure Pulmonary Lesions.—During the past year the medical unit at Preston Hall has investigated some obscure pulmonary lesions by means of tomography. McDougall asserts that the value of tomography over the usual roentgenographic methods is that sections—anteroposterior and lateral—may be taken at any depth of the chest in such a way that it is possible to analyze the various strata of the lung substance at given depths and thereby to eliminate much of the confusion which frequently appears on ordinary roentgenograms owing to the superimposition of shadows of varying density. The author explains some of the advantages of tomography by the description of two cases which have recently come under treatment. In both cases latent cavities have been brought to light. In the first case, extensive cavity formation unsuspected in the anteroposterior roentgenograms was shown in the dorsal section of the lungs, and in the second case a patent cavity following thoracoplasty has been accurately localized with a view to complete closure at an early date. It was for this particular type of case that tomography was considered in its earliest days to be most useful, but it is now abundantly clear that sectional analysis of the chest in cases of pulmonary tuberculosis reveals many secrets which are not given by ordinary flat roentgenograms, however excellent the technic. The information which has been supplied in cases of incomplete artificial pneumothorax and in all cases of cavity formation is invaluable. Postmortem verification of x-ray appearances is most important and in one case in particular tomography during life reproduced with fidelity the pathologic appearances found at necropsy.

Tubercle, London

18: 433-480 (July) 1937

Radiologic Classification of Cases of Pulmonary Tuberculosis. J. Watt.—p. 433.
Inoculation of Minimal Doses of Tubercle Bacilli into Guinea-Pigs, Rabbits and Mice. Herta Schwabacher and G. S. Wilson.—p. 442.
Note on Twenty-Three Years' Sanatorium Administration. Esther Carling.—p. 454.

Chinese Medical Journal, Peiping

51: 773-1108 (June) 1937. Partial Index

Fundamentals of State Medicine. Wu Lien-Teh.—p. 773.
Some Problems of Medical Organization in Rural China. C. C. Ch'en.—p. 803.
Tuberculosis in Eastern Countries. C. L. Park.—p. 821.
*Investigation of Nineteen Communicable Diseases in China: Report of First Year. S. C. Hsu and C. T. Kê.—p. 833.
Tuberculosis Incidence Among Chinese Children. Annie V. Scott.—p. 851.
*Lead Poisoning, with Especial Reference to Some Unusual Sources of Intoxication: Report of Thirteen Cases. C. S. Yang, S. L. Chang and K. Liu.—p. 945.
Seven Years of Jennerian Vaccination in Tinghsien. C. C. Ch'en, H. W. Yü and F. J. Li.—p. 953.
Intracutaneous Quantitative Tuberculin Test in Active Pulmonary Tuberculosis. J. S. Pan.—p. 979.
An Inquiry into Prevalence of Syphilis in Nanking. T. H. Wang, J. Y. Shen and C. C. Chang.—p. 983.

Communicable Diseases in China.—Hsu and Kê analyze material presented by an investigation covering nineteen communicable and parasitic diseases. The data were collected from 204 hospitals in various provinces. Among 29,468 cases reported for the year 1935, 16,829 were outpatients and 12,639 were inpatients. The numbers of inpatients suffering from ancylostomiasis, cerebrospinal meningitis, fasciolopsiasis, kala-azar, typhoid and typhus were much larger than those for outpatients with these diseases. Among the nineteen diseases, malaria had the greatest incidence of all, 50.2 per cent of the total. The men patients having schistosomiasis were ten times as numerous as the women.

Lead Poisoning and Sources of Intoxication.—In the last two years, Yang and his associates encountered thirteen cases of lead poisoning. In searching for the source of intoxication they found that, among the uneducated and occasionally the educated suffering from serious illness, many resort to religious aids, some of which are related to charms and amulets. As practiced when a person is ill a taoist priest, after having performed certain religious ceremonies, takes up a pen and writes on a piece of yellow paper a series of charms and amulets, which after burning into ash is partaken of by the patient in a cup of water. An experiment was conducted in which the smoke from a certain type of opium pipe having a holder coated with pewter was sucked through water in which a stream of hydrogen sulfide was passing. After the fume had passed through for three minutes, the water appeared definitely grayish. Small pieces of the coating material were scraped from the mouth piece and subjected to chemical analysis. In this particular pipe the pewter contained 21 per cent of lead. Persons using this kind of pipe may be poisoned either through the fumes or through the ingestion of lead from the mouth piece. There are two such cases in the present series. It was also found that the commonly used wine pot made of pewter contains lead in large quantities, varying from 32 to 72.8 per cent. In the Chinese way of warming rice wine before drinking, the pot containing wine is placed in hot water. It was found that in as short a time as fifteen minutes from 0.0155 to 0.0054 Gm. of metallic lead went into solution per hundred cubic centimeters of wine. There was one case in which the history indicates that the intoxication must have been either from the ingestion of lead particles or from inhaling dust in a smelting foundry.

Bulletin de l'Académie de Médecine, Paris

118: 45-121 (July 20) 1937

Tuberculous Contagion Among Children in the Family Group. F. Bezançon, P. Braun, Mme. Frey-Ragu and C. Paul.—p. 64.
Nurslings After Tuberculous Contact. F. Bezançon, P. Braun, Mme. Frey-Ragu and Arribehaute.—p. 68.
Significance of Negative Skin Reactions to Tuberculin and Late Changes in the Reaction. F. Bezançon, P. Braun, Mme. Frey-Ragu and Mlle. Raymond.—p. 71.
*Treatment of Leprosy with Tellurium. E. Marchoux and V. Chorine.—p. 86.
*Action of the Sex Hormones on the Prostate. C. Champy, M. Heitz-Boyer and R. Coujard.—p. 93.

Treatment of Leprosy with Tellurium.—Marchoux and Chorine report experiments on the treatment of leprosy. Among the various substances that were tried at their laboratory, tellurium was found to be the most effective. In this report they describe experiments on rats with metallic tellurium and its mineral salts in oil suspension or in solution of dextrose. In summarizing their observations, they state that metallic tellurium or its mineral salts arrest the further development of leprosy. In the treated animals, the micro-organisms either ceased to multiply or did so very slowly, while in the untreated rats the development remained active. The metal is deposited on the waxy membrane of the bacilli, but it is doubtless the interior milieu of the host cell which is more active than this deposit in inhibiting the further multiplication of the parasitic elements. Between April 1936 and June 1937, rats weighing about 100 Gm. tolerated weekly injections of 2, 4, 5, 6 and 10 mg. of sodium tellurate; that is, a total of 2.4 Gm. per kilogram of body weight. From the first injections the animals gave off a strong odor of garlic; the eyes of the white rats became black and the skin took on a gray color. In the treatment of human leprosy the authors observed pigmentation of the skin and discoloration of the eyes. The cutaneous lesions were set off in black on a slightly grayish skin. An injection of 0.25 Gm. every five days was well tolerated. Under the influence of the tellurium the pains disappear, the lepromas decrease and the general condition improves. All these improvements become manifest during the month following the beginning of the treatment.

Action of Sex Hormones on the Prostate.—Champy and his associates point out that the introduction of large amounts of estrogen produces in normal male animals, young or old, a sort of adenomatous hypertrophy of the prostate. This action cannot be a direct one, for, if the same amount of estrogen is administered to castrated animals there is no modification of this type. The estrogen probably acts on the hypophysis and the testes. After citing other experimental observations, the authors point out that the experimental hypertrophy of the prostate which is produced by estrogen and that which develops in men are caused by the same condition in the testis and its internal secretions. Further, the authors give their attention to the therapeutic use of testis hormone in hypertrophy of the prostate, pointing out that the favorable effect on the dysuria often precedes the diminution of the adenoma. The authors think that this is due to a mucoid edema around the vessels of the verumontanum, an edema that is normal to adult animals, is missing in castrates and is diminished in aged animals. In discussing the relationship between the reappearance of this edema and the cessation of the dysuria, the authors point out that the retention of the urine in hypertrophy of the prostate is not merely a mechanical problem, that is, the retention is not simply caused by the enlargement of the prostate, for in case of an extremely large prostate evacuation of the bladder may not be hindered, while complete retention may exist in the presence of a slight hypertrophy. Resection of only the median lobe of the prostate often reestablishes normal vesical evacuation, owing to the fact that in this resection fibers are severed which represent the posterior commissure of the urethrovesical sphincter. Since the rupture of the muscle counteracts the dysuria, it is reasoned that its relaxation should accomplish a similar result. The edema that is elicited by testis hormone effects such a relaxation and the authors think that this explains the prompt effect of testis hormone on the dysuria in hypertrophy of the prostate.

Paris Médical

2: 45-72 (July 17) 1937

Hematology in 1937. P. Harvier and J. Mallarmé.—p. 45.
*Simultaneous Punctures of Hematopoietic Centers in Chronic Erythroblastic Splenomegaly of Adults. P. Émile-Weil and Suzanne Perlès. p. 53.
Congenital Hemopathies with Erythroblastosis. M. Lelong.—p. 59.
Pleural and General Eosinophilia in a Case of Pleurisy with Eosinophils. P. Harvier and J. Mallarmé.—p. 67.

Punctures of Hematopoietic Centers in Erythroblastic Splenomegaly.—The condition designated by Émile-Weil and Perlès as chronic splenomegaly with erythroblastosis of adults includes not only a part of the erythrocythemias, the erythroleukemias and several myelogenic subleukemias but also certain splenic anemias, the megakaryocytic splenomegalies and an important part of Banti's disease. This synthesis is the result of splenic punctures; for in furnishing identical pictures in all these cases, it was demonstrated that a splenogram exists which is characterized by a more or less pronounced myelocytosis and a considerable erythroblastosis, which in the circulating blood may be manifest or not. The authors describe their observations in splenic, hepatic and sternal punctures. From the combination of these punctures in ten cases of typical or latent erythroblastosis, the authors arrived at conclusions which are of theoretical and practical interest. The combination of punctures and the puncture of the spleen in particular permit the recognition not only of erythroblastosis in the blood but also of the cryptic forms, even in the absence of circulating erythroblasts. In discussing the treatment, the authors point out that irradiation modifies the volume of the spleen only slightly and diminishes only the accompanying myelomatosis. Some patients observe an improvement in their general condition, but many do not feel better; on the contrary, they complain of increasing fatigue and anemia. For this reason it is advisable to employ radiation therapy only under strict hematologic control. But without hoping to obtain results as satisfactory as in myelogenic leukemia, the treatment may be begun with irradiations, and splenectomy can be resorted to secondarily. In several, even severe, cases splenectomy produced favorable results and did not act as in myelogenic leukemia, in which removal of the spleen had fatal consequences. The involvement of the liver in the morbid process does not contraindicate a surgical intervention, but, if the sternal puncture reveals even a slight cellular proliferation, surgical treatment is inadvisable.

Presse Médicale, Paris

45: 1083-1098 (July 24) 1937

Organizing Principle and Problem of Cancer. J. Jolly.—p. 1083.
*Death from Intrahepatic Hemorrhage in Cancer of Liver. M. Loeper.—p. 1085.
Tularemia in Czechoslovakia. J. Drbohlav.—p. 1086.

Intrahepatic Hemorrhage in Cancer of Liver.—According to Loeper, in patients with cancer of the liver the general condition is often comparatively favorable for long periods. Even if the neoplasm is rather large, the patient is not only practically free from symptoms but even the chemical examinations produce practically normal results. Death comes slowly. However, occasionally it is rapid, sudden and surprising, because it occurs without apparent reason. A digestive intoxication may provoke a mild diarrhea, and vomiting and death may follow in thirty-six hours. After citing earlier reports on the termination of hepatic cancer, the author describes several cases of rapid and sudden deaths after hepatic cancer, which are not caused by hematemesis, by toxic hepatitis or by a terminal infection but by unrecognized intrahepatic hemorrhage. The first patient whose history is reported had a giant lymphadenoma of the liver, but despite the enormous size of the liver the general condition was comparatively favorable. One morning he complained of a violent epigastric pain, which persisted for five or six hours and then suddenly became exacerbated, nausea developed and angina pectoris, and within five hours the patient died. The necropsy revealed an enormous lymphadenoma, the interior of which contained hemorrhagic foci, and in the adjacent parenchyma there were veritable lakes of blood. Death was apparently caused by this hemorrhage. Following the description of another case, the author points out that this mode of termination by hepatic hemorrhage is not sufficiently thought

of. The treatment is of course purely palliative in these cases. In the summary the author states that cancer of the liver may terminate rapidly (1) by the sudden aggravation of the inanition, which is produced by the dyspeptic coma, (2) by rapid secondary cancerization, (3) by an external hemorrhage, hematemesis or melena and (4) by intraparenchymatous hemorrhage. In the latter cases, the rupture of a vascularized nucleus produces an effusion in the surrounding parenchyma and separates the trabeculae and even the capsule. This accident is indicated by a sudden hepatic pain and is rapidly followed by death.

Progrès Médical, Paris

July 24, 1937 (No. 30) Pp. 1105-1136

*Prognostic Value of Slackening of Radial Pulse During and After Blood Transfusion for Hemorrhage. M. Fourestier.—p. 1113.
Bilateral Renal Tuberculosis. Marion.—p. 1118.

Prognostic Value of Radial Pulse in Blood Transfusion.—Fourestier demonstrates the importance and the necessity of the slowing down of the radial pulse during and after a transfusion that is given as a substitution in case of hemorrhage. He shows that studying the frequency of the pulse before, during and after the transfusion permits the estimation of the quantity of injected blood, regulation of the rhythm of the intervention and the anticipation, to a certain extent, of the patient's reactions after transfusion. In case of a transfusion for substitution or replacement (in case of hemorrhage) the pulse which was at first accelerated must slow down during and after the transfusion. If it does not do this, the reason is that either the transfusion was not sufficient, the hemorrhage continues, or a state of shock exists, and it is necessary to try to arrest the hemorrhage by other means than even a massive transfusion. The site of the injection can sometimes explain the absence of the influence of the transfusion on the slowing down of the pulse. Transfusions in the veins of the lower extremities that are made late in profuse hemorrhages are often without apparent immediate action on the cardiac rhythm.

Schweizerische medizinische Wochenschrift, Basel

67: 664-684 (July 17) 1937. Partial Index

Relations of Essential Rheumatic Arthronosis Deformans to Primary Chronic Polyarthritis Rheumatica and the Chronic Articular Diseases. K. von Neergaard.—p. 665.
New Vascular Analeptic and Its Therapeutic Action in Acute Disorders of Respiratory Apparatus. M. Roch and F. Sciclounoff.—p. 667.
*Male Hormones in Urine of Men and Women of Different Ages. E. Dingemanse, H. Borchardt and E. Laqueur.—p. 670.
Duration of Action of Hypnotics and Partial Oxygen Tension of Inspired Air. G. Piotrowski.—p. 671.

Male Hormones in Urine of Men and Women.—Dingemanse and his collaborators studied the amount of male hormone in the urine of men and women of different age groups. The male, like the female hormones, are eliminated in the urine in two different forms. The methods of determination formerly employed disclosed only the free form of the male hormone. However, a large portion of the hormone is eliminated in the combined form. Thus the formerly detected quantities of from 4 to 6 units of male hormone per liter of urine are much too low. By heating with acid, the hormone can be freed from the combination and thus becomes demonstrable. The authors do not describe the details of their method of extraction. The hormones were tested by determining the growth of the combs of capons after injection of the hormone preparations. The stated units are international units. The authors summarize their observations as follows: 1. The urine of healthy, sexually mature men contains from 40 to 50 units. 2. The urine of healthy women contains approximately the same quantity of male hormone as does that of men (on the average from 30 to 60 units). 3. After the sexual function has ceased, even during advanced senility and after castration, the urine still contains male sex hormone; to be sure, the quantities of the hormones are considerably less than in younger persons. 4. Boys and girls eliminate male hormone, but here too the quantities are smaller. 5. Pregnancy urine also contains male hormone. 6. It is improbable that the eliminated hormone originates in the ingested food.

Minerva Medica, Turin

1: 623-650 (June 17) 1937

Associated Trigeminal and Glossopharyngeal Neuralgia. A. G. Chiariello.—p. 623.
*Subacute and Acute Leukemia with Early Period of Subacute Myelosis and Remission. F. Penati.—p. 627.
Pathogenesis of Diabetes Insipidus. G. Donini and E. Caporali.—p. 637.
*Early Diagnosis of Acute Anterior Poliomyelitis. R. De Mattia.—p. 640.
Old and New Treatments: Humoral Mechanism of Bleeding. U. Rondelli.—p. 641.

Leukemia with Early Myelosis and Remission.—Penati states that there is a type of acute leukemia which evolutes in two different periods with an interval of remission which lasts for from two to eight months. The early period is that of acute or subacute myelosis or acute leukemia with grave hyperchromic anemia, a decreased number of blood platelets and leukocytes, agranulocytosis and the presence of a great number of immature cells in the blood. During remission the clinical recovery is complete. The hemogram is normal or there is slight agranulocytosis. After remission, acute leukemia develops. According to the author, this type of acute leukemia offers two problems for discussion. The first problem is that of the relation between leukemia and the dysfunction of the hematopoietic system. It points out the relation of leukemia to certain blood diseases (agranulocytosis, aleukia and panmyelophthisis) which originate in a dysfunction of the hematopoietic system. The second problem is that of the possible reversibility of histopathologic changes in leukemia. In connection with it, it is interesting to ascertain the reason for the recurrence after the remission. According to the author, the evolution of this type of leukemia is due to the fact that the threshold of the hematopoietic system is normal during the early period of the disease but is lowered as the disease progresses and is the lowest after remission. The author recommends that (1) one have in mind a diagnosis of acute leukemia in acute and subacute myelosis (agranulocytosis, aleukia and panmyelophthisis); (2) if the clinical and blood conditions improve one should have the patient under medical observation for six or eight months for a possible recurrence, and (3) a biopsy of bone marrow obtained by puncture of the sternum should be done in all the cases in which recurrence takes place.

Early Diagnosis of Acute Anterior Poliomyelitis.—De Mattia emphasizes the importance of the diagnosis of acute anterior poliomyelitis early in the preparalytic period. It is made by the following symptoms: muscular pain that is more intense at the zones of union of the muscles and tendons, hyperesthesia of the skin on the involved muscles, disappearance or diminution of the reflexes, hypotonicity of the muscles of the nucha (Deshayes' sign) and meningism. The pain is of a lancinating type. It shows the development of vascularitis and neuritis early in the evolution of acute anterior poliomyelitis and indicates the advisability of performing an examination of the cerebrospinal fluid obtained by lumbar puncture. The cerebrospinal fluid in poliomyelitis is eliminated under normal or slightly increased pressure. It is clear, free from septic material and, after standing, produces no sediment and shows slight pleocytosis and increase of dextrose and albumin. A doubt as to the differential diagnosis between lymphocytic meningitis and acute anterior poliomyelitis is no excuse for delaying the antiserum treatment, which has to be administered as soon as the first nervous symptoms appear. Sometimes the administration of antiserum is followed by the appearance of paralysis of certain groups of muscles. The paralysis is transient and confirms the diagnosis of acute anterior poliomyelitis in the given case.

2: 1-32 (July 8) 1937

Cystic Diseases of Lung: Clinical Forms. R. Agnoli.—p. 1.
Dental Dystrophy from Congenital Syphilis: Teeth of Moon and Hutchinson. B. Pincherle.—p. 8.
*Tumors with Myeloplaxes of Tendon Sheaths: Cases. N. Santero.—p. 13.
Primary Cancer of Appendix Vermiformis: Cases. C. Cavina.—p. 16.
Conservative Surgical Treatment of Bilateral Reno-Ureteral Calculosis and Local Glycerin Treatment of Pelvic Ureteral Calculosis: Results in Cases. G. di Maio.—p. 20.

Tumor with Myeloplaxes of Tendon Sheaths.—According to Santero, tumors with myeloplaxes of tendons and of tendon sheaths are made up of dystrophic tissues originating in local inflammation and trauma. The clinical diagnosis is that of probability. The differential diagnosis is made from

other types of benign tumors. The slow and benignant evolution of tumors with myeloplaxes differentiates them from sarcoma. The tumors, on microscopic examination, seem to be made up of giant cells of myeloplaxic type with a large number of nuclei, equally distributed in the cell, leaving the cellular periphery free from nuclei. The treatment consists in early surgical removal of the tumors and surrounding tissues. The patient must be observed for possible recurrences and the operation is repeated if there are any. Two cases of tumors of myeloplaxes of the tendon sheaths of the fingers are reported. There was an inflammatory factor in addition to industrial trauma in each case. Up to the present, two and four years since removal of the tumor, it has not recurred.

Policlinico, Rome

44: 1473-1512 (Aug. 2) 1937. Practical Section

Why Actual Criteria on Therapy of Appendicitis Have to Be Reviewed. G. Baggio.—p. 1473.
*Treatment of Pluriresistant Syphilis. C. Fivoli.—p. 1476.
Systematic Administration of Intravenous Vaccines in Treatment of Typhoid. A. Piraino.—p. 1483.

Pluriresistant Syphilis.—Fivoli advises resorting to pyretotherapy in association with bismuth preparations in syphilis that is resistant to arsphenamine, bismuth preparations and mercury. The treatment consists of eight injections of streptobacillary vaccine (dmelcos) given at intervals of four days. During the intervals fifteen intravenous injections of 3 cc. of a 10 per cent oil emulsion of bismuth are given at the rate of two each week. On completion of the treatment the patient is clinically cured, as is verified by the complete disappearance of the lesions of genital organs and oral mucosa and by the negative results of the Wassermann test. The crasis of the blood and nutritional and general condition of the patient are greatly improved by the treatment, which is harmless and well tolerated. One case is reported.

Rivista Italiana di Ginecologia, Bologna

20: 1-128 (Feb.) 1937

Congenital Diaphragmatic Hernia. A. Chimenti.—p. 1.
Cancer of Neck of Uterus and Vagina in Young Women. L. Puccioni.—p. 17.
Pharmacology of Smooth Muscles of Fallopian Tubes. G. Morosi.—p. 69.
*Motor Functions of Ureter in Course of Pregnancy. G. Cordaro.—p. 92.

Motor Functions of Ureter in Course of Pregnancy.—According to Cordaro, the motor functions of the ureter during pregnancy are normal up to the fifth month, when they are retarded up to complete atony. Near the ninth month of pregnancy, the ureters become normal and continue to be normal during the puerperium. The age of the women and the number of children they have previously have no influence on the functional behavior of the ureters during pregnancy. The temporary atony of the ureters is due to the predominance of substances from the corpus luteum over prehypophysial and follicular substances during this phase of pregnancy. The temporary inhibition of ureteral functions causes no injury to the kidney. However, if during the period of ureteral atony a local infection takes place, pyelitis develops. The functional torpor of the ureters in pyelitis continues all through the last three months of pregnancy and slowly regresses late in the puerperium.

Archiv für Kinderheilkunde, Stuttgart

111: 65-128 (June 18) 1937

Nature and Treatment of Feer's Disease. E. Lorenz.—p. 65.
*Etiology, Differential Diagnosis and Therapy of Pylorospasm and Pylorostenosis. H. Knauer.—p. 78.
Roentgenogram of Sella in Premature Births. K. Gefferth.—p. 87.
Treatment of Acrodynia in Children. E. Mayerhofer.—p. 94.

Etiology, Differential Diagnosis and Therapy of Pylorospasm.—Knauer points out that, because the stimulus threshold of the center of vomiting is rather low in nurslings and small children, every infection, not only a cerebral one, may be accompanied by vomiting. Moreover, such attacks may be followed by habitual vomiting. However, if vomiting appears during the first few weeks of life and is especially massive and explosive, pylorospasm or pylorostenosis is usually thought of. After pointing out that this condition is comparatively frequent, the author shows that two different terms for the same or at least extremely similar disease entities indicate that the etiology of the condition has not been completely explained as yet. Some apply the term hypertrophic pylorostenosis, while others adhere to the term pylorospasm; some assume an abnormal narrowness of the mucosa; others see the cause of the symptoms in a primary, tumor-like muscular hypertrophy, and still others assume a primary stenosis followed by secondary muscular hypotrophy. Still other theories have been advanced and it is possible that the different theories are justified, for the reason that the anatomic foundation may not be the same in all cases. The author also cites cases in which the symptoms of pylorospasm are of purely nervous origin. In such cases the vomiting usually ceases as soon as the children are hospitalized, but it often recurs when the children are returned to the nervous parents. The author thinks that various factors concur in order to produce the condition, which he designates as "pylorospasm in simultaneous hypertrophic pylorostenosis." He gives several case histories which illustrate the justification of designating the condition as he does. He says that for years he was an advocate of the conservative method of treatment, but in view of the fact that of the large number of conservative measures which have been recommended none produce satisfactory results, he now advises surgical treatment for the pylorospasm with hypertrophic stenosis. Of course he does not recommend an immediate operation for every patient who is hospitalized with the diagnosis of pylorospasm. However, if after several days of observation the vomiting does not cease and other symptoms of pylorospasm are present, the operation should be performed for it is not advisable to postpone it for weeks until the child has become extremely weak. It is of course essential that the operation for hypertrophic pylorostenosis be done only by experienced surgeons; the after-treatment should if possible be conducted in the pediatric clinic.

Beiträge zur Klinik der Tuberkulose, Berlin

89: 503-792 (June 18) 1937. Partial Index

Significance of General Tuberculous Infection for Human Organism. P. Huebschmann.—p. 511.
General Tuberculous Infection and Metabolic Processes in Human Subjects. E. Grafe.—p. 552.
Obesity and Pulmonary Tuberculosis. H. Curschmann.—p. 556.
*Relations Between General Tuberculous Infection and Endocrine Organs. O. Schedtler.—p. 558.
Modification of Circulation by Tuberculosis. R. Cobet.—p. 561.
*General Tuberculous Infection as Allergic Disease. E. Schulz.—p. 569.
Chemotherapy and Specific Therapy of Tuberculosis. H. Siegmund.—p. 605.
Specific Treatment of Tuberculosis. W. Pfannenstiel.—p. 655.

Tuberculous Infection and the Endocrines.—Schedtler was induced to study this problem by Schroeder's observation that the function of the thyroid plays an important part in the course of tuberculosis. That author observed that, in patients with hyperthyroidism, tuberculosis usually takes a rather mild course, whereas in myxedema an accompanying tuberculosis often has an especially unfavorable character. On the basis of these observations, which were supported by others, it has been suggested that thyroxine be used in the treatment of tuberculosis. The author investigated these problems in animal experiments but was unable to obtain uniform results in rabbits and guinea-pigs. On the whole he gained the impression that the animals which had been subjected to thyroidectomy succumbed to the tuberculous infection more slowly than the controls. Moreover, the administration of thyroxine exerted an unfavorable effect in that it activated the tuberculous process. In his studies on a large number of patients, the author found the combination of anomalies of the thyroid function with tuberculosis neither especially rare nor extraordinarily frequent but just about as would be expected. Thus he came to the conclusion that the thyroid function is not especially important for the course of the tuberculous process. Nevertheless, in case of the concurrence of tuberculosis with thyroid disturbances, the two disorders may influence each other. He does not think that thyroxine can be generally recommended as a therapeutic agent for tuberculosis. Further he discusses the influence of the gonadal function on tuberculous infections. In this connection he cites the unfavorable effects exerted on the tuberculous process during the time of puberty, the first period of married life, menstruation, pregnancy and especially during the time immediately after the birth of a child. Experiments have

proved that castration has a weakening effect on the tuberculous process and so it is suggested by the author that temporary castration (perhaps by means of roentgen rays) might exert a favorable influence on some cases of tuberculosis. Regarding the rôle of the pancreas in tuberculous infections, he says that it is generally believed that diabetes mellitus often favors the development of tuberculosis and that the tuberculosis in diabetic patients is usually rather severe. However, there is no evidence that tuberculosis predisposes to diabetes mellitus and so it may be concluded that the reduced resistance to tuberculosis on the part of diabetic patients demonstrates only that the resistance of these patients is generally low. The knowledge about the relation between the thymus and tuberculous infections is still limited, but the author directs attention to Schroeder's investigations, which proved that tubercle bacilli may be rendered apathogenic in thymus extracts. Other incretory organs seem to exert no noticeable influence on the general tuberculous infection.

General Tuberculous Infection as Allergic Disease.—Schulz says that it is well known that allergy develops with tuberculous infections. This fact as well as the allergic processes in tertiary phthisis are not discussed here, but the author tries to find replies to the following questions: 1. Is there a tuberculous hyperallergy? 2. Under what conditions does it develop? 3. What are its clinical aspects? He defines hyperergy as an increased reaction and hyperallergy as an increased, changed reaction, that is, a pathologic one, an increased sensitivity to toxin. In tuberculosis the hyperallergic process is demonstrated most clearly when the intracutaneous vaccination with extremely small quantities of tuberculin is followed by a severe inflammatory or even necrotic reaction in the involved portion of the skin. It should be understood that such reactions can take place also in other organs which are not as easily accessible for observation as is the skin. Regarding the conditions under which tuberculous hyperallergy develops, the author is of the opinion that it can develop only if the tuberculous antigen reaches the blood stream slowly and successively by way of the lymphatic passages. In this manner the organism is again and again in a state of irritation, which results in sensitization and finally in hyperallergy. In discussing the clinical aspects of tuberculous hyperallergy, the author differentiates two phases. During the first phase the general sensitization of the organism develops. The second phase develops either as the result of the accumulation of antigens or because the body has been weakened and the consequent reduction in the antibody formation results in a great excess of antigens. After showing that the tuberculous hyperallergy may become manifest in pulmonary processes and also in other organs such as the stomach and gallbladder, the author discusses the therapy. Efforts should be made to bring the hypersensitized organism again into a normal reactivity by means of desensitization with tuberculin.

Klinische Wochenschrift, Berlin

16: 977-1008 (July 10) 1937. Partial Index

Significance of Spleen for Diseases of Blood. E. Lauda.—p. 977.
Influence of Thyroid on Carbohydrate Metabolism: Action of Insulin in Exophthalmic Goiter and Myxedema. F. Meythaler and H. Mann. —p. 983.
*Alimentary Ketonemia and "Antiketogenic" Action of Dextrose. S. Markees.—p. 985.
Action of Vitamin C in Necrotic Diphtheria. K. Kumagai, S. Yamagami, Y. Nikai and S. Imai.—p. 987.
*Rapid Method for Estimation of Uremia as Substitute for Determination of Rest Nitrogen. H. Popper, E. Mandel and Helene Mayer.—p. 987.
Blood Creatinine and Urine Creatinine as Measure of Glomerular Filtration. W. von Moraczewski, S. Grzycki and W. Gucfa.—p. 989.

Antiketogenic Action of Dextrose.—Markees describes his investigations on the "antiketogenic" action of dextrose. He attempted to answer the question "Can the administration of dextrose simultaneously with or before the intake of fat (in fasting persons) prevent the formation of acetone bodies from the food fats?" He found that the administration of dextrose does not prevent the formation of acetone bodies but accelerates and improves the utilization and removal of the formed acetone bodies in the organism; that is, it prevents a spontaneous hyperketonemia. The alimentary ketogenesis, however, is preserved, as was demonstrated by the epinephrine interception method. The author points out that these observations are a new proof of the close connection between fat and carbohydrate metabolism.

Rapid Method for Estimation of Uremia.—Popper and his associates assert that mild disturbances in the renal function produce an increase in the creatinine content even if the rest nitrogen is still unchanged. In the more severe forms of renal insufficiency, in which the rest nitrogen is increased, the increase in creatinine is much more pronounced. Whereas rest nitrogen rarely increases to more than ten times the normal value, the creatinine content may increase to forty times the normal content. Thus the creatinine content is an extremely sensitive indicator of renal insufficiency and the determination of the creatinine content deserves the preference over the determination of the rest nitrogen. Jaffé's color reaction, which was used by Folin and the principle of which is used also in the reaction here described, can be done rapidly and with simple means. It permits the demonstration of an increase in the creatinine content of the blood. Since the creatinine content of the whole blood and the plasma do not differ greatly, the test can be made on the whole blood. The required reagents are saturated picric acid and a 10 per cent sodium hydroxide solution. Approximately 2 cc. of blood is withdrawn from the vein and put into a test tube that contains approximately 8 cc. of saturated aqueous picric acid. After the blood and picric acid have been thoroughly mixed, the mixture is heated over the Bunsen burner until the color changes from yellowish red to brownish red. Then filtration is done and after the not always clear filtrate is cooled under the water tap, 1 drop of the sodium hydroxide solution is added for each cubic centimeter of filtrate. The authors remark that the quantitative ratios do not have to be absolutely exact. Following the addition of the sodium hydroxide, the light yellow color of the picric acid changes to dark yellow if the creatinine content is normal, for in such cases the concentration of the creatinine is too slight to produce a noticeable red coloration. If the creatinine content of the blood is slightly increased, a reddish color develops in the course of about five minutes. In case of greater increase in creatinine, the red coloration becomes more intense. With this simple test it is possible to determine in a few minutes the degree of renal insufficiency as well as the presence of an incipient or a fully developed uremia. The authors give a tabular report of fifty cases in which they demonstrate that the creatinine values (as determined with the described test) correspond with the rest nitrogen values.

Münchener medizinische Wochenschrift, Munich

84: 1121-1160 (July 16) 1937. Partial Index

*Acidity in Gastritis and Bacterial Flora of Stomach. A. Mahlo.—p. 1126.
Work Test, a Simple Method for Diagnosis and Estimation of Disturbances in Peripheral Arterial Circulation. M. Ratschow.—p. 1128.
Inadequate Pulmonary Examination of Newly Hospitalized Patients. H. Braeuning.—p. 1130.
Thrombosis of Pulmonary Artery. G. Liebermeister.—p. 1131.
Question of Estimation of Alcohol Content of Blood. H. Elbel.—p. 1133.
Prevention and Treatment of Mental Depression Before and During Menstruation. W. Braun.—p. 1136.
Injurious Effects of Iodine Caused by Use of Tooth Pastes Which Contain Iodine. W. K. Fränkel.—p. 1137.

Acidity in Gastritis and Bacterial Flora.—Mahlo reviews the literature on the bacterial flora in the stomach and finds some contradictory statements; for, whereas some insist that the gastric juice has a disinfecting power, others deny this. The author himself thinks that, in gastritides in which the hydrochloric acid conditions are normal, bacteria from various sources may be found. There are bacteria which originate in the oral cavity, some which originate in the small intestine, some which thrive in the phase surface epithelium/mucus and some killed bacteria that are protected against digestion by mucus. The predominance of the one or the other factor will explain the different bacterial aspects in the presence of normal acidity. Moreover, even if the great bactericidal power of the gastric juice has been established, this does not prove that in stomachs with gastric changes the same conditions prevail over the entire epithelial surface; on the contrary, it must be assumed and it is indicated by the bacteria in the mucus that the bacterial colonies thrive in certain regions, that is, probably at the sites of severest inflammation. In answer to the question whether a gastritis in which the mucus contains large bacterial

colonies differs from other gastritides the author states that there are no definite clinical differences. Only a microscopic examination of the mucus permits a diagnosis. In discussing the therapy the author points out that watching the elimination of reducing substances in the urine is of great help. In case of gastritides with subacidity, measures should be taken to remedy this subacidity. If this is done, the bacteria will be killed and the gastritis improved. However, in gastritis with normal or hyperacidity a silver protein preparation not only kills the bacteria but also exerts a favorable effect on the inflammatory process. The author admits that the use of silver preparations involves the danger of argyrosis and so he recommends oxygen in the nascent state, which he produces by giving magnesium superoxide together with katalase (peroxidase). This medication destroys the bacterial colonies in a few days.

Wiener klinische Wochenschrift, Vienna

50: 1051-1082 (July 16) 1937. Partial Index

Crisis in Hereditary Pathology and Eugenics: Guiding Principles of Eugenics. A. Greil.—p. 1054.
Clinical Aspects and Therapy of Cancer of Colon. H. Finsterer.—p. 1059.
Risk of Embolism in Obliteration of Varicose Veins. G. Nobl.—p. 1063.
*Pathogenesis of Herpes Zoster in Lymphatic Leukemia. I. Scheinker.—p. 1065.
Transfusion of Conserved Blood. E. Domanig.—p. 1067.

Pathogenesis of Herpes Zoster in Lymphatic Leukemia.—Scheinker gives a detailed description of a case of herpes zoster gangraenosus in which a lymphatic leukemia was discovered as the basic disorder. From the clinical point of view the case is noteworthy because of the formation of large pemphigus-like blisters with a hemorrhagic base and a tendency to hemorrhages. This symptom does not occur in the ordinary idiopathic herpes zoster and might be explained by the tendency to hemorrhages, which exists in leukemia. The case had a fatal outcome. The necropsy is described and particularly the microscopic aspects of the brain and spinal cord. Relations of leukemia to herpes zoster are suggested by the pathologic changes on the roots and spinal ganglions of the upper dorsal region. The root bundles contained dense leukemic infiltrations. The same infiltrations, although in a milder degree, were found also in the region of the spinal ganglions. The author suggests that these leukemic infiltrations on the spinal roots and ganglions may have elicited a disturbance in the trophovasomotor innervation and thus may have produced a favorable ground for the development of the herpes zoster.

50: 1083-1114 (July 23) 1937. Partial Index

When Is Removal of Both Ovaries Indicated in Case of Unilateral Ovarian Tumor? H. Kahr.—p. 1083.
Leptospiroses of Human Subjects, Particularly Weil's Disease. W. Beiglböck.—p. 1088.
*Use of Normal Human Serum in Multiple Sclerosis. E. Stransky.—p. 1093.
Mountain Climate and Athletics as Cardiac Stimulants. L. Hofbauer.—p. 1095.
Sport Injuries and Their Incidence. E. Kutscha von Lissberg.—p. 1098.
*Action of Extract of Bacillus Pyocyaneus. H. Adler.—p. 1100.

Normal Human Serum in Multiple Sclerosis.—Stransky based his therapeutic experiments with normal human serum on the hypothesis that multiple sclerosis is an infectious process. He admits that the infectious nature has not been proved as yet but thinks that it is nevertheless possible. He assumes that the blood of persons who remain free from it might contain humoral protective substances against the virus of multiple sclerosis and decided to try the serum of such persons in the treatment of patients with multiple sclerosis. In view of the fact that multiple sclerosis usually develops in the period between puberty and the middle years of life and only rarely in persons over 50 years of age, he decided to try serum of persons over 50 years of age who had never shown signs of multiple sclerosis. The serum of such persons was put through the necessary process to insure its sterility and was put into ampules of 10 cc. each. It was injected into the gluteal muscle of patients with multiple sclerosis. The single doses never exceeded twice 10 cc. in one day. The intervals between the injections were usually two days, rarely one day. In a few cases more than two days elapsed between the injections. The author cites several cases of multiple sclerosis in which this treatment produced favorable results. The quantity of serum that is required for an effect and the duration of the effect seem to vary in different cases. The author shows that this treatment will require further investigation. He suggests that larger quantities of serum or even direct blood transfusion could be tried.

Action of Extract of Bacillus Pyocyaneus.—Adler points out that as early as 1888 it was observed that Bacillus pyocyaneus and its metabolic products prevent infections with anthrax. He reviews subsequent bactericidal experiments with extracts of Bacillus pyocyaneus and shows that they produced contradictory results. The ineffectiveness of some preparations and certain defects, such as the unpleasant odor, caused many physicians to abandon the therapeutic use of the pyocyaneus extracts. The action of the former pyocyaneus preparations was due to their content in dyestuffs and in fatty acids. Both components have a bactericidal effect; but since there are pyocyaneus preparations that have no bactericidal effect, there must be a third, as yet unknown, factor. At the serotherapeutic institute of Vienna, efforts were made to eliminate the defects of the earlier preparations. The new pyocyaneus extract is produced from several strains, some of which contain dyestuffs and some of which do not. Alcoholic extracts are prepared from forty-eight hour agar cultures and, after several purifications, they are condensed by evaporation. The residue is dissolved in water and unsaturated fatty acids are added. By avoiding bouillon cultures, the offensive odors are readily removable. The final preparation is free from killed bacteria and from disinfecting substances. Bactericidal experiments with the new preparation gave satisfactory results. The preparation was found helpful in tonsillitis, nasal diphtherias and certain forms of rhinitis.

Sovetskiy Vrachebnyy Zhurnal, Leningrad

June 30, 1937 (No. 12) Pp. 881-960. Partial Index

Criteria of Cure of Malaria. E. M. Tareev and A. A. Gontaeva.—p. 883.
*Magnesium Sulfate in Treatment of Eclampsia. V. V. Stroganov and Davidovich.—p. 891.
Procaine Hydrochloride Block in Treatment of Skin and Venereal Diseases. L. N. Mashkilleyson, L. A. Abramovich and N. A. Smirnov.—p. 901.
Rôle of Functional Tolerance Tests in Rheumatic Infections, Particularly in Association with Mechanical Factors Acting on Corresponding Organ. B. V. Ilyinskiy.—p. 907.
Demonstration of Early Types of Tuberculosis Among School Children. N. M. Sokolova, M. A. Linnikova and A. F. Christyakova.—p. 931.

Magnesium Sulfate in Treatment of Eclampsia.—Stroganov and Davidovich report the results of magnesium sulfate therapy in 201 cases of eclampsia. The treatment was carried out in the following manner: The patient was placed in a darkened room and kept at absolute rest. Soon after an eclamptic attack or after the admission, the patient was given from 0.015 to 0.02 Gm. of morphine hydrochloride and an examination made under light chloroform anesthesia. Half an hour later, 40 cc. of a 15 per cent solution of magnesium sulfate (6 Gm.) was introduced under the skin. Morphine was repeated one and one-half hours later and magnesium sulfate three and one-half hours later in a dose of 6 Gm. if there was another attack, or of 4 Gm. when no further attack took place. If labor did not terminate, 4 Gm. of magnesium sulfate was injected eight hours later. Full doses (6 Gm.), not to exceed 24 Gm. in twenty-four hours, were given if the attacks recurred. Patients admitted to the clinic after six or more attacks were treated by means of blood letting and puncture of the amniotic bag. Of the 201 patients, six died. Of 212 children born, 167 were dismissed living from the clinic (78.8 per cent). There were thirty stillbirths and fifteen deaths after delivery, altogether forty-five, or 21.2 per cent. Attacks were terminated in 136 (67.7 per cent) after one injection of magnesium. Sixty-nine patients went on to a spontaneous delivery, while 132 were operated on. The authors conclude that magnesium sulfate is a potent agent in the treatment of eclampsia. They are, however, unable to say whether it is more useful than chloral hydrate. Among the disadvantages of the drug the authors point out its toxicity, which they feel was counteracted in their cases by the administration of morphine; the tendency to the development of abscesses at the site of injection, and a tendency to the development of psychoses. The latter occurred in 2 per cent of their cases, while with the use of chloral hydrate the incidence was 1 per cent.